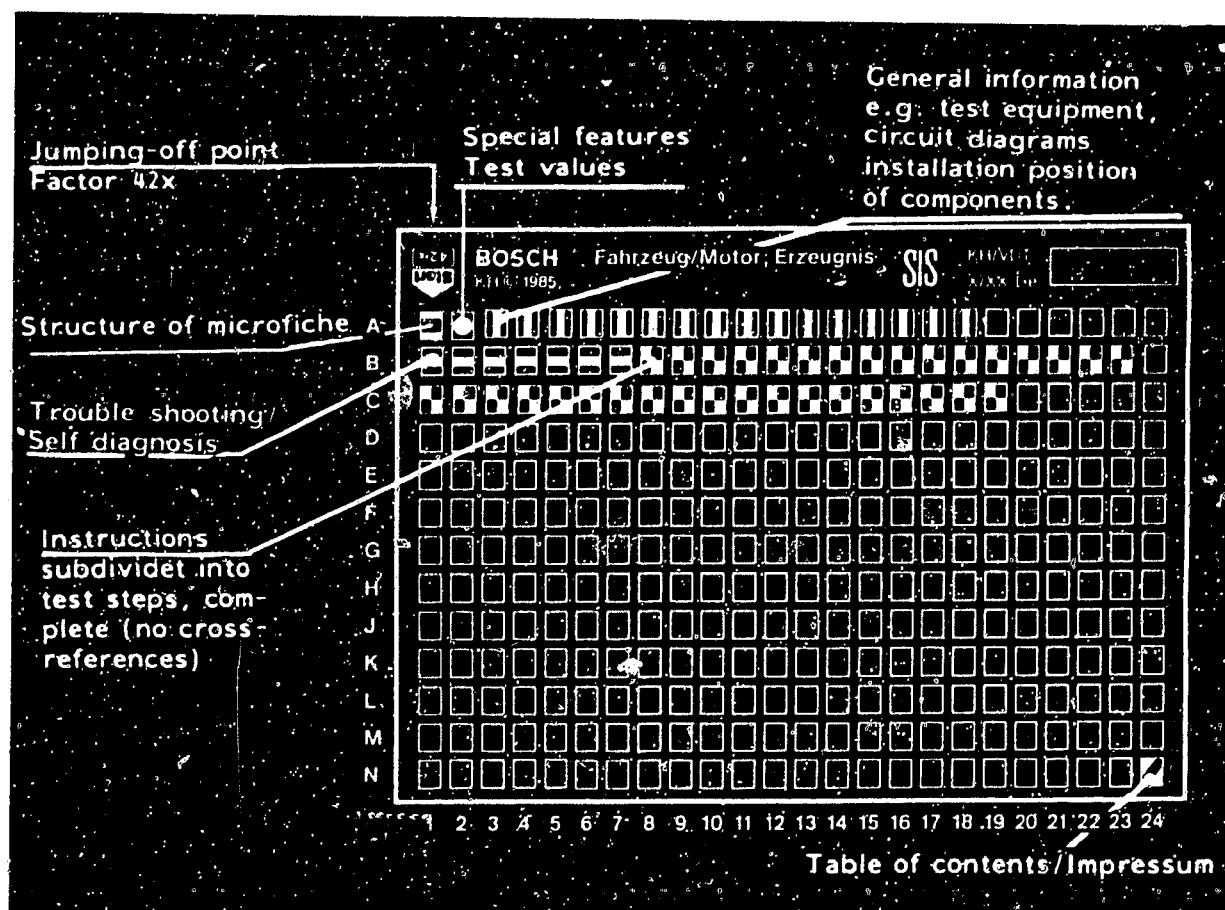


# Structure of microfiche



1. Read from left to right
2. Title of microfiche (appears on each coordinate)

|            |                             |
|------------|-----------------------------|
| <b>E16</b> | Product/component/test step |
|            | Vehicle/engine              |

Coordinate

3. Limits of section

|           |             |     |                  |
|-----------|-------------|-----|------------------|
|           |             |     |                  |
| Beginning | Mid-section | End | One-page section |

4. References to relevant test steps in test specifications; coordinate e.g. C6

|           |
|-----------|
| <b>C6</b> |
|-----------|

|           |                          |  |
|-----------|--------------------------|--|
| <b>A1</b> | Trouble-shooting program |  |
|-----------|--------------------------|--|

## 1. Special features

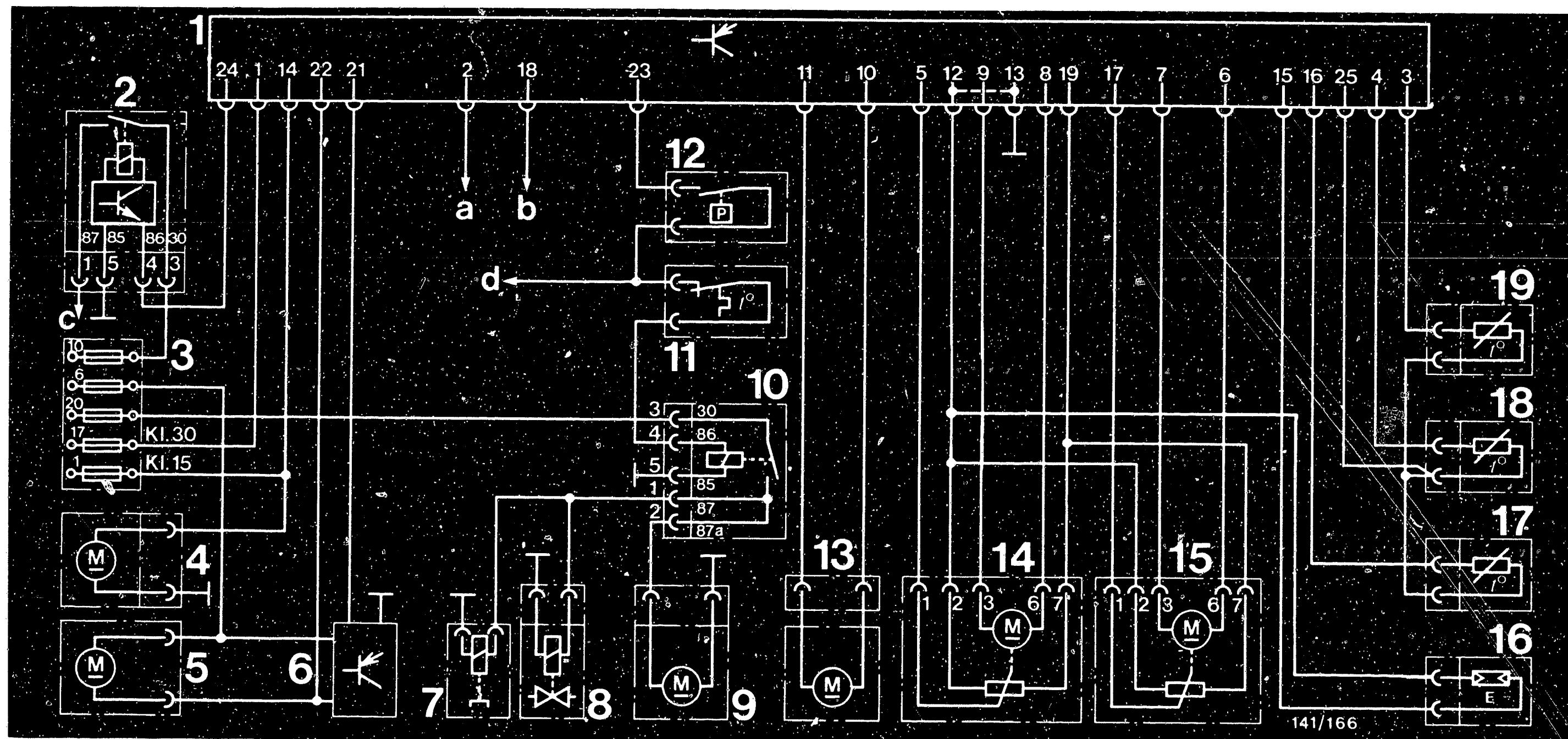
Testing and repair instructions with test specifications for Saab 9000/9000 Turbo (1984→) with air conditioner.

Air conditioner control unit is equipped with self-diagnosis.

## 2. Test specifications

|  |  |             |
|--|--|-------------|
| Passenger-compartment temperature sensor | 16...8 k $\Omega$<br>at 15...20°C at temperature sensor            | <b>B 10</b> |
| Outside-temperature sensor               | 922 $\Omega$ ...1 k $\Omega$<br>at 15...30°C at temperature sensor | <b>B 12</b> |
| Blow-in temperature sensor               | 12.5...8 k $\Omega$<br>at 20...30°C at temperature sensor          | <b>B 14</b> |
| Solar sensor                             | 0.01...0.6 mA<br>depending on intensity                            | <b>C 15</b> |
| Control unit power supply                | 12...14 V  | <b>C 5</b>  |





- 1 = Electronic control unit with control panel  
 2 = Heated rear window relay  
 3 = Fuse box  
 4 = Suction blower for passenger-compartment temperature sensor  
 5 = Blower motor  
 6 = Solar sensor  
 7 = Solenoid-operated valve for idle increase  
 8 = Refrigerant compressor magnetic clutch  
 9 = Engine fan

- 10 = Refrigerant compressor relay  
 11 = Icing protection switch  
 12 = Refrigerant compressor pressure switch  
 13 = Fresh/recirculated air flap drive  
 14 = Air distributor flap drive  
 15 = Mixing flap drive  
 16 = Solar sensor  
 17 = Outside temperature sensor

- 18 = Blow-in temperature sensor  
 19 = Passenger-compartment temperature sensor

- a = to light switch  
 b = to instrument illumination brightness control  
 c = to heated rear window and outside-mirror heating  
 d = to AC cooling blower relay

3. Electrical terminal diagram of air conditioner

**A3**

Electrical terminal diagram

Saab 9000



**A4**

Electrical terminal diagram

Saab 9000



#### 4. General introduction

##### Automatically controlled air conditioner (ACC)

The passenger-compartment temperature is regulated by the electronic control unit.

With the temperature selector keys it is possible to set in stages the desired passenger-compartment temperature between two limits ("low" and "high"). The set temperature is indicated by two LED figures.

In the control unit the preselected temperature (set-point) is compared with the temperature measured by the passenger-compartment temperature sensor (actual value). Depending on the deviation from the set setpoint, the heater mixer flap, the air distributor flap and the fresh/recirculated air flap are adjusted by servo motors or the refrigerant compressor switched on as a function of the blow-in and outside temperatures; this applies when the system is set to "AUTO". Potentiometers built into the servo motors report the position of the mixer flap and the position of the air distributor flap to the control unit. When set to "ECON", the refrigerant compressor is switched off; the passenger compartment is cooled by the supply of fresh air.

The blower speed, the air distribution and the fresh/recirculated air flap are automatically regulated by the control unit. In addition, the heated-rear window and the outside-mirror heating are automatically controlled by the control unit. The control system can be overridden by using the respective switches.





## 5. Test equipment, tools, auxiliaries

Multimeter ETE 014.00  
or e.g. Pontavi Wh 2

0 684 101 400  
commercially  
available

Refrigerant spray

commercially  
available

Measuring leads

KDZS 0005

Thermal-conduction paste

5 942 860 003

**A6**

Test equipment, tools, auxiliaries  
Saab 9000



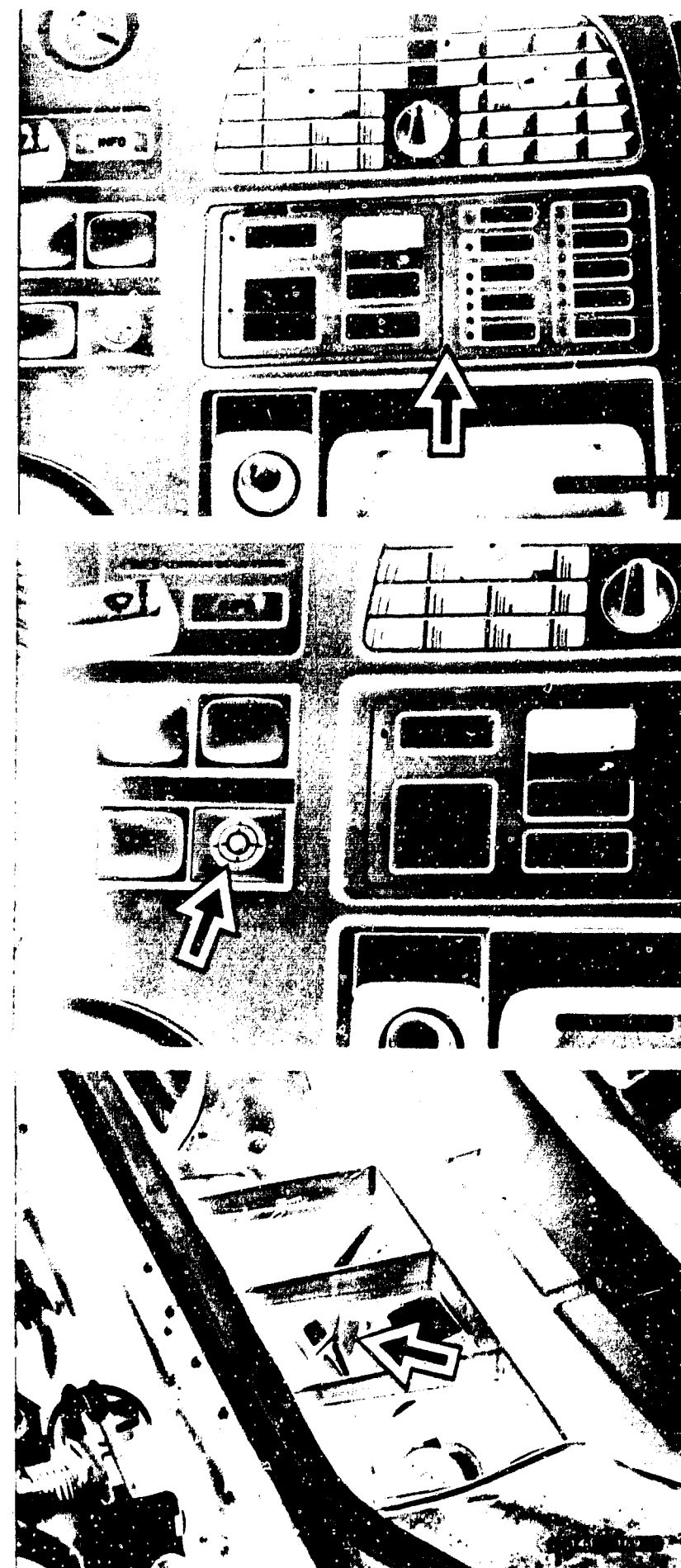
## 6. Installation position of components

Control panel with built-in control unit is installed in the center console (see top picture). To remove, take out ashtray and press control unit out of holding clamps from rear.

Passenger-compartment temperature sensor is mounted in the dashboard next to the control panel (see center picture, arrow). Air is admitted to the passenger-compartment temperature sensor by a suction blower (installed behind glove compartment on servo motor unit).

Outside-temperature sensor is screwed onto the blower box on the outside (see bottom picture, arrow).

The motor for the fresh/recirculated air flap is installed in the engine compartment on the right under the cover (not shown).



**A7**

Installation position of components  
Saab 9000



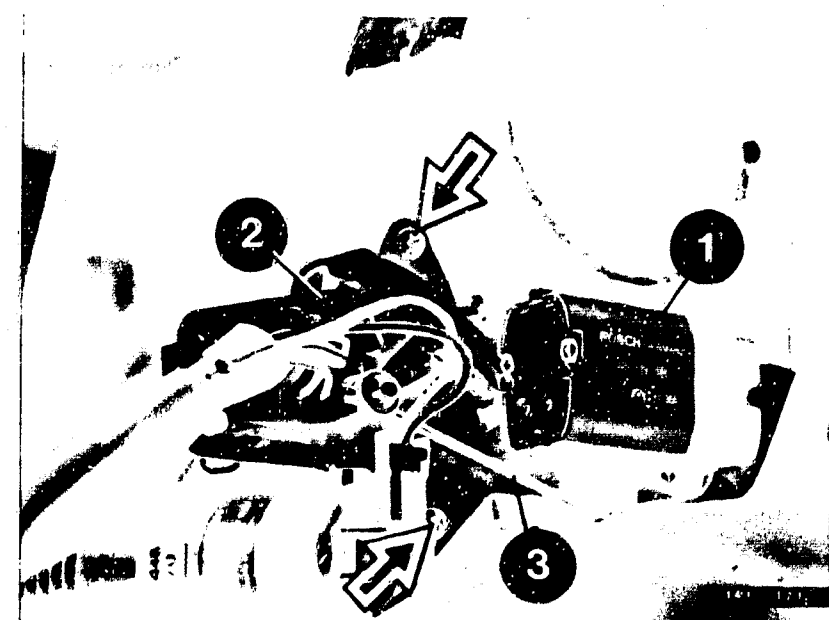
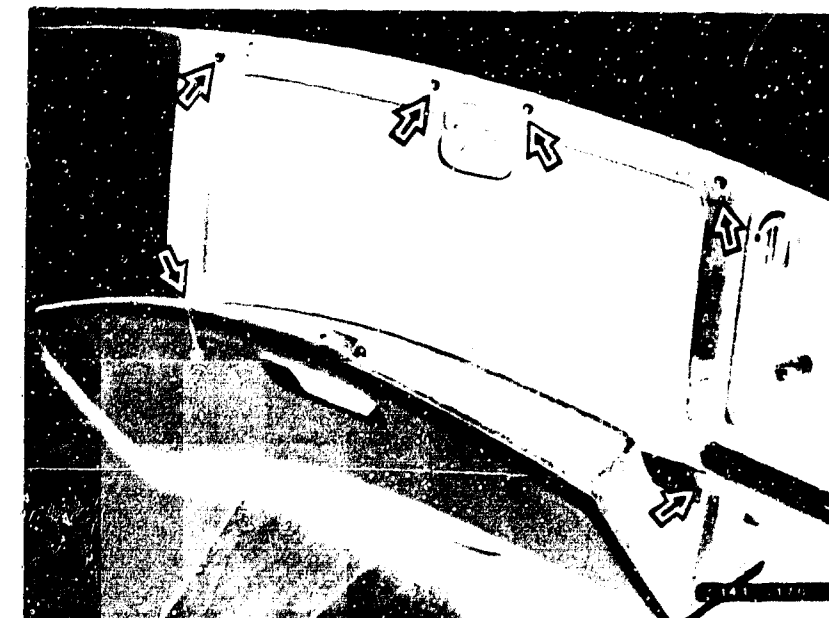
**A8**

Installation position of components  
Saab 9000



The flap control unit consists of air distributor flap drive (center picture "1") and mixing flap drive (see center picture "2"). The flap control unit is mounted on the heater box under the glove compartment. To remove/install, take out glove compartment and central-electrics box. For glove-compartment fastening screws, see top picture, arrows.

The flap control unit is mounted on the heater box by 2 screws (center picture, arrows). The mixer flap is adjusted by the cable "3" (see center picture), the air distributor flap by the servo drive "4" (see bottom picture).



**A9**

Installation position of components  
Saab 9000

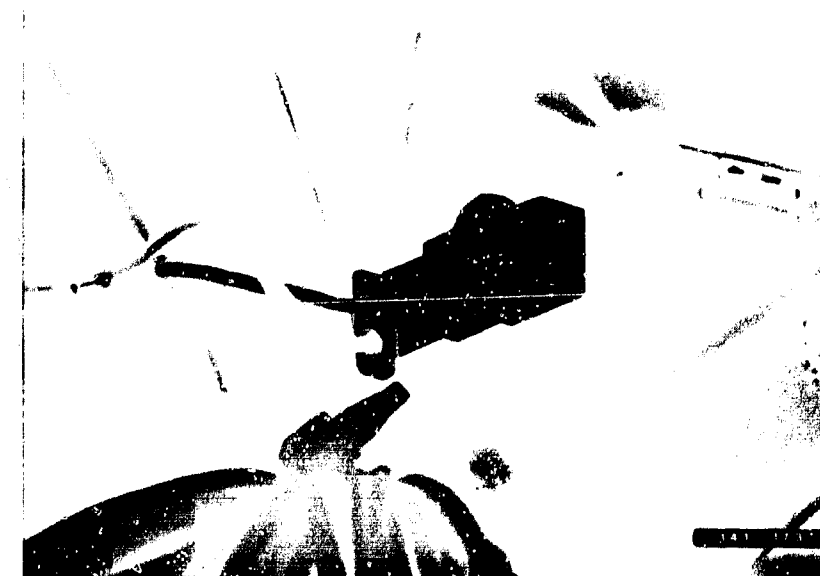


**A10**

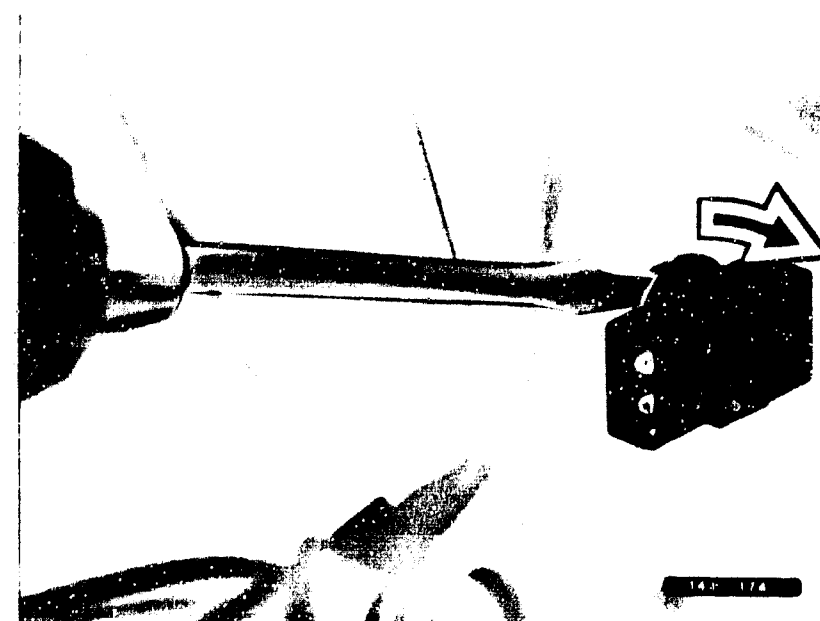
Installation position of components  
Saab 9000



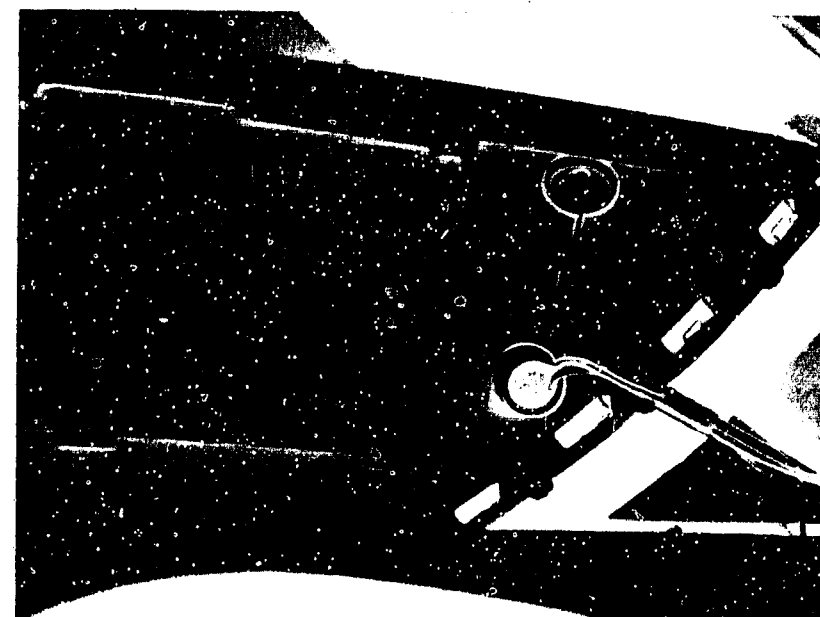
The blow-in temperature sensor is clipped into the heater box below the flap control unit (see top picture).



To remove, apply screwdriver between blow-in temperature sensor and heater box and press out blow-in temperature sensor (see center picture).



The solar sensor is installed in the left-hand loudspeaker fascia in the dashboard. To remove/install, take out loudspeaker fascia. The solar sensor is plugged into the loudspeaker fascia from below (see bottom picture).



**A11**

Installation position of components  
Saab 9000

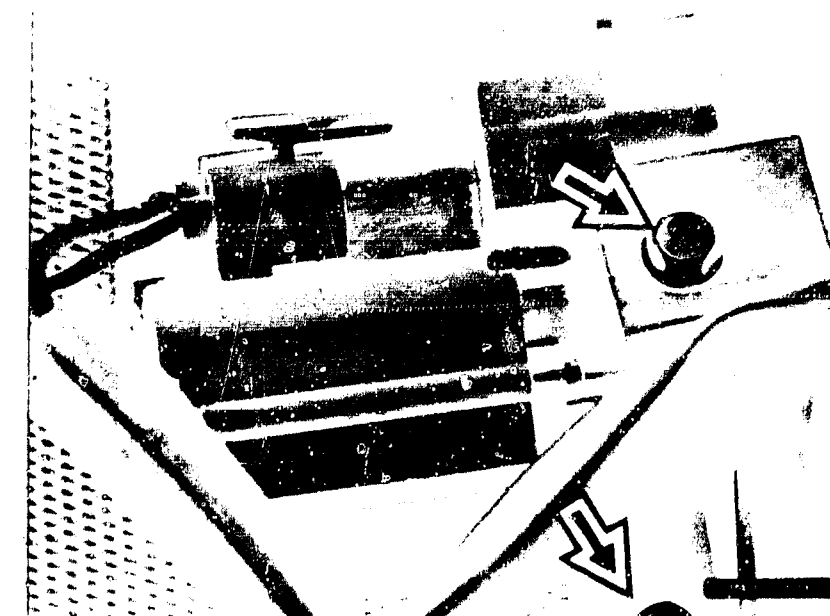


**A12**

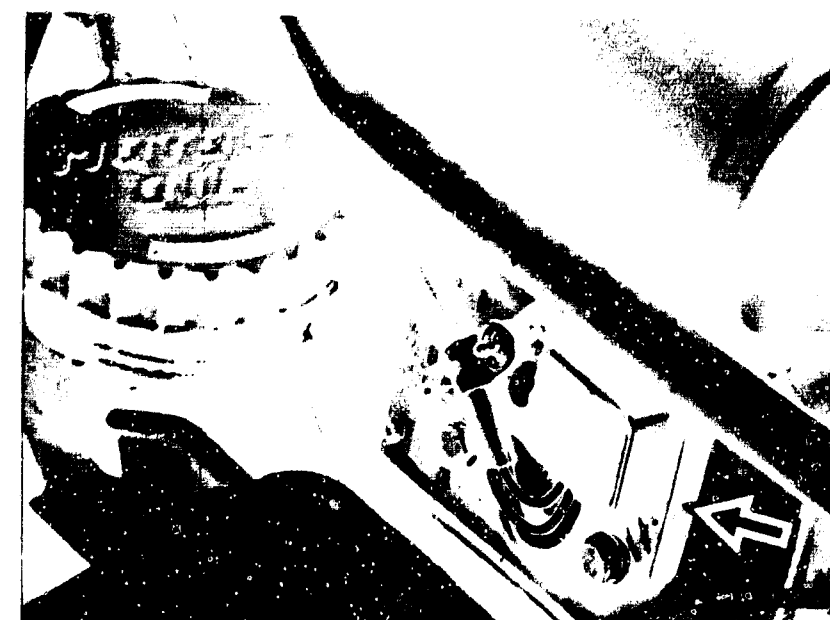
Installation position of components  
Saab 9000



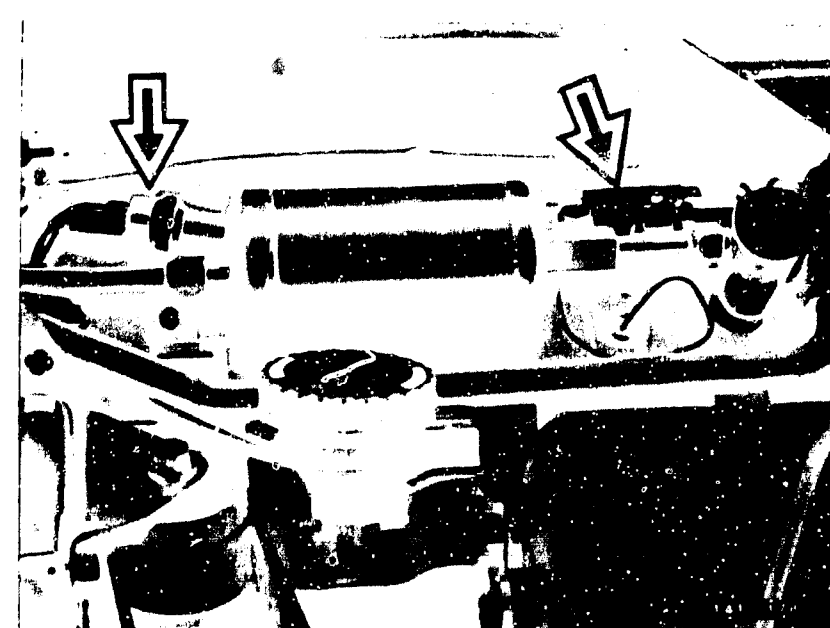
The fresh/recirculated air flap drive is installed in the engine compartment on the right under the cover (already removed in picture). To remove/install, unscrew fastening screws (see top picture, arrows) and withdraw drive from fresh/recirculated air flap.



The blower controller with heat sink is mounted on the evaporator housing behind the intermediate wall (see center picture, arrow). To remove/install, take out the intermediate wall (already removed in picture).



Pressure and icing-protection switches are installed in the engine compartment under the cover (already removed in picture) (see bottom picture).



**A13**

Installation position of components  
Saab 9000

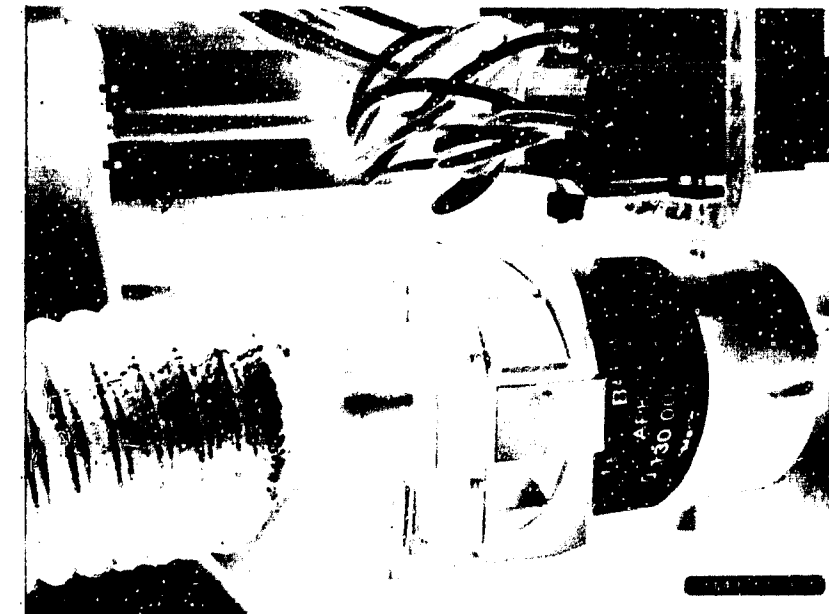


**A14**

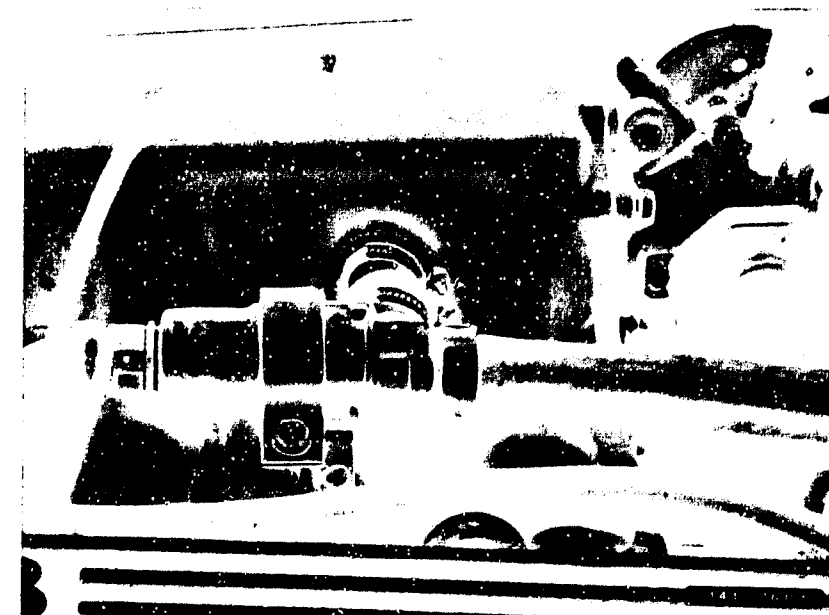
Installation position of components  
Saab 9000



The suction blower for admitting air to the passenger-compartment temperature sensor is mounted on the flap control unit behind the glove compartment (see top picture).



The change-over valve for idle-speed increase is mounted on the intake manifold (see bottom picture).



**A15**

Installation position of components  
Saab 9000



**A16**

Installation position of components  
Saab 9000



## 7. Trouble-shooting:

### 7.1 How to operate the self-diagnosis

This vehicle is equipped with a control unit which has a self-diagnosis.

Therefore, whenever testing, begin with the self-diagnosis.

Coordinate B 2 describes how to activate the self-diagnosis.

The self-diagnosis test table beginning on Coordinates B4/B5 contains fault indication, cause of fault, test instructions and coordinate references for direct trouble-shooting.

If no fault is indicated by the self-diagnosis and the customer complaint is still not remedied, continue trouble-shooting with the trouble-shooting chart B8/B9.



## 7.2 Activating the self-diagnosis

First make sure of the following: Battery fully charged, coolant and refrigerant levels O.K.

### General:

The self-diagnosis detects and indicates faults in the hardware of the control unit, in sensors and servo drives connected to the control unit, and in their wiring. The fault indication is displayed on the temperature indicator on the control unit.

The indicated faults are noted by the operator and are remedied with the aid of the self-diagnosis test table.

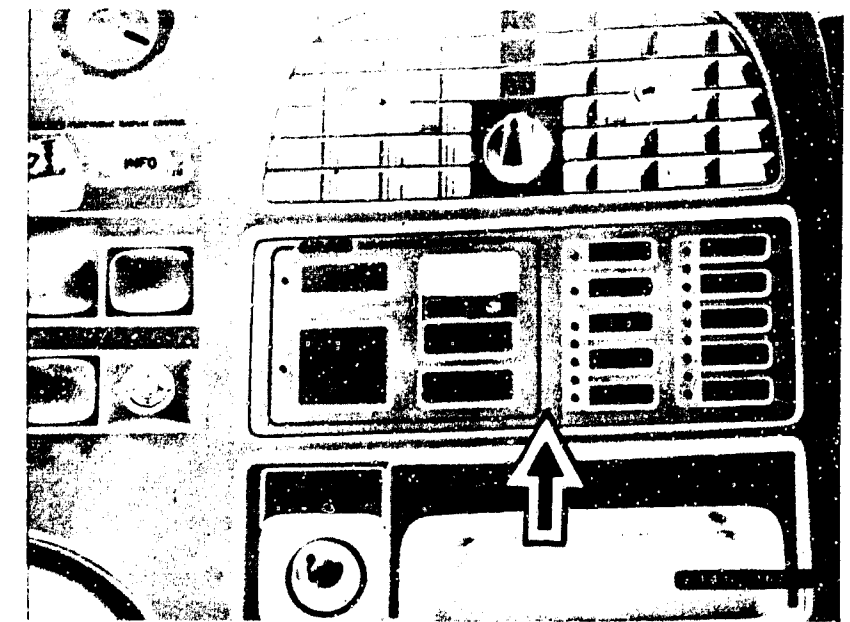
### Activating the self-diagnosis:

Switch on ignition.

Simultaneously press "AUTO" and "VENT" keys, then release "AUTO" key first. All segments of display flash. After the self-diagnosis has been run through, the display shows the number of faults detected in the system.

By pressing the "VENT" key it is possible to have the individual faults displayed one after the other.

After the last fault has been displayed, pressing the "VENT" key again returns the control unit to its normal operating program.





### 7.3 Self-diagnosis test table

| <u>Fault indication</u> | <u>Cause of fault</u>                    | <u>Test instructions</u>  | <u>Coordinate</u> |
|-------------------------|--|---|-------------------|
| 1 U                     | Passenger-compartment temperature sensor | Open circuit in sensor lead.<br>Passenger-compartment temperature sensor defective.   | B 10              |
| 1 C                     |  | Short circuit in sensor lead.<br>Passenger-compartment temperature sensor defective   |                   |
| 2 U                     | Outside-temperature sensor               | Open circuit in sensor lead.<br>Outside-temperature sensor defective.   | B 12              |
| 2 C                     |  | Short circuit in sensor lead.<br>Outside-temperature sensor defective.  |                   |
| 3 U                     | Blow-in temperature sensor               | Open circuit in sensor lead.<br>Blow-in temperature sensor defective.   | B 14              |
| 3 C                     |  | Short circuit in sensor lead.<br>Blow-in temperature sensor defective.  |                   |
| 5 U                     | Mixing flap drive                        | Open circuits/short circuits in motor and feedback potentiometer circuits; servo drive blocked.<br>Feedback potentiometer incorrectly adjusted. | B 16              |
| 5 C                     |  | Motor direction of rotation incorrect   |                   |
| 6 U                     | Air distributor flap drive               | Open circuits/short circuits in motor and feedback potentiometer circuits;<br>servo drive blocked.  | B 20              |
| 6 C                     |  | Motor direction of rotation incorrect   |                   |

**B4**

 Self-diagnosis  
Saab 9000

**B5**

 Self-diagnosis  
Saab 9000


| Self-diagnosis test table (continued) |                                   |  |                   |
|---------------------------------------|-----------------------------------|--|-------------------|
| <u>Fault indication</u>               | <u>Cause of fault</u>             | <u>Test instructions</u>   | <u>Coordinate</u> |
| 7 U                                   | Fresh/recirculated air flap drive | Open circuit/short circuit to ground in phase 1 or 2   | C 1               |
| 7 C                                   |                                   | Short circuit in motor or motor blocked  |                   |
| AU                                    | Blower control and blower motor   | Open circuit/short circuit in $U_M$ lead.<br>Blower motor blocked.<br>Open circuit in $U_{St}$ lead. Blower controller defective | C 2               |
| AA                                    |                                   | Short circuit in $U_{St}$ lead.<br>Blower controller defective.  |                   |
| EU                                    | Control unit                      | Control unit defective.  | ---               |

## 8. Trouble-shooting chart

**Customer complaint (fault symptom)**

1. no heating output or heating output poor
2. no refrigerating output or refrigerating output poor
3. Poor performance of heater blower
4. No change of blower speed in direct sunlight (in cooling mode)
5. Incorrect air distribution
6. Recirculated air mode not possible
7. Heated rear window not operating
8. Temperature setpoint cannot be stored
9. Heating cannot be switched off

|   |   |   |   |   |   |   |   |   | Cause of fault                               | Test instructions                       | Coordinates |
|---|---|---|---|---|---|---|---|---|--|---|-------------|
| ● | ● | ● | ● | ● | ● | ● | ● |   | unclear                                      | carry out detailed trouble-shooting     | B 1         |
| ● |   |   |   |   |   |   |   |   | Low coolant level                            | Top off coolant                         | ----        |
|   | ● |   |   |   |   |   |   |   | Low refrigerant level                        | Top off refrigerant                     | ----        |
|   | ● |   |   |   |   |   |   |   | Icing-protection switch defective            | Check icing-protection switch           | C 11        |
|   | ● |   |   |   |   |   |   |   | Compressor clutch energiz.defect.            | Check compressor clutch relay           | C 11        |
|   |   | ● |   |   |   |   |   |   | Blower controller defective                  | Check blower controller                 | C 3         |
|   |   |   | ● |   |   |   |   |   | Solar sensor defective                       | Check solar sensor                      | C 15        |
|   |   |   |   | ● |   |   |   |   | Air distributor flap motor defective         | Check air distributor flap drive        | B 20        |
|   |   |   |   |   | ● |   |   |   | Fresh/recirculated air flap motor defective  | Check fresh/recirculated air flap motor | C 1         |
|   |   |   |   |   |   | ● |   |   | Energization of heated rear window defective | Check heated window relay               | C 13        |
|   | ● | ● |   | ● | ● | ● |   |   | Control unit defective                       | Perform self-diagnosis                  | B 1         |
| ● | ● |   |   |   |   |   |   | ● | Mixing flap motor defective                  | Check mixing flap drive                 | B 16        |
|   |   |   |   |   |   |   | ● |   | Control unit defective                       | Replace control unit                    | ----        |

**B8**

## Trouble-shooting chart

Saab 9000



B9

## Trouble-shooting chart

Saab 9000



## 9. Trouble-shooting program

Check passenger-compartment temperature sensor: (Self-diagnosis fault indication 1 U or 1 C)

Switch off ignition.

Disconnect control unit plug.

Using ohmmeter, check term. 3 to term. 25 on control unit plug.

Reading should be:  
16 ... 8 k $\Omega$  at  
approx. 15°...30° at  
passenger-compartment  
temperature sensor.

Reading within tolerance?

yes

Spray refrigerant spray into passenger-compartment temperature sensor; resistance must increase during cooling.

Does resistance increase?

yes

Continued on next picture side

## Trouble-shooting if test specification not within tolerance:

Using ohmmeter, check the following leads for short circuit and open circuit:

- from control unit plug term. 3 to temperature sensor plug
- from control unit plug term. 25 to temperature sensor plug

Reading should be: approx. 0  $\Omega$

- check term. 3 to term. 25 on control unit plug (temperature sensor plug disconnected)

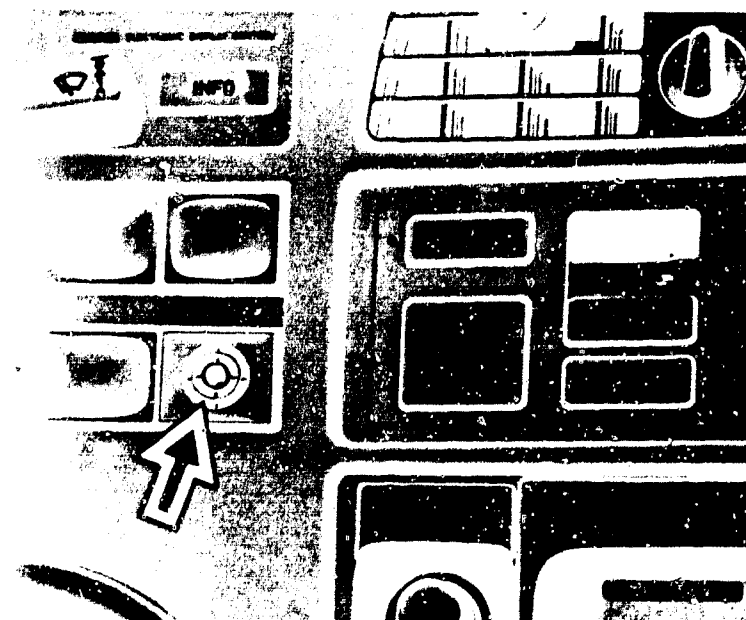
Reading should be:  $\infty\Omega$

- check resistance of passenger-compartment temperature sensor between pins of passenger-compartment temperature sensor:

Reading should be: 16 ... 8 k $\Omega$   
at approx. 15°...30°C  
at passenger-compartment temperature sensor.

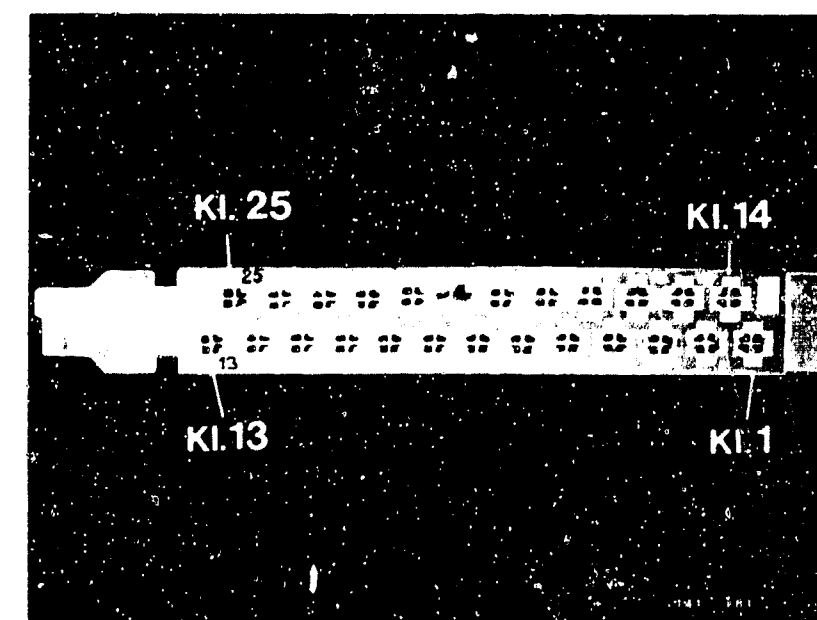
Eliminate contact resistances/open circuits.  
Replace passenger-compartment temperature sensor.

Replace passenger-compartment temperature sensor



Arrow = Passenger-compartment temperature sensor

Control unit plug



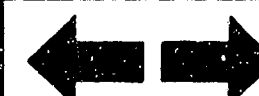
**B10**

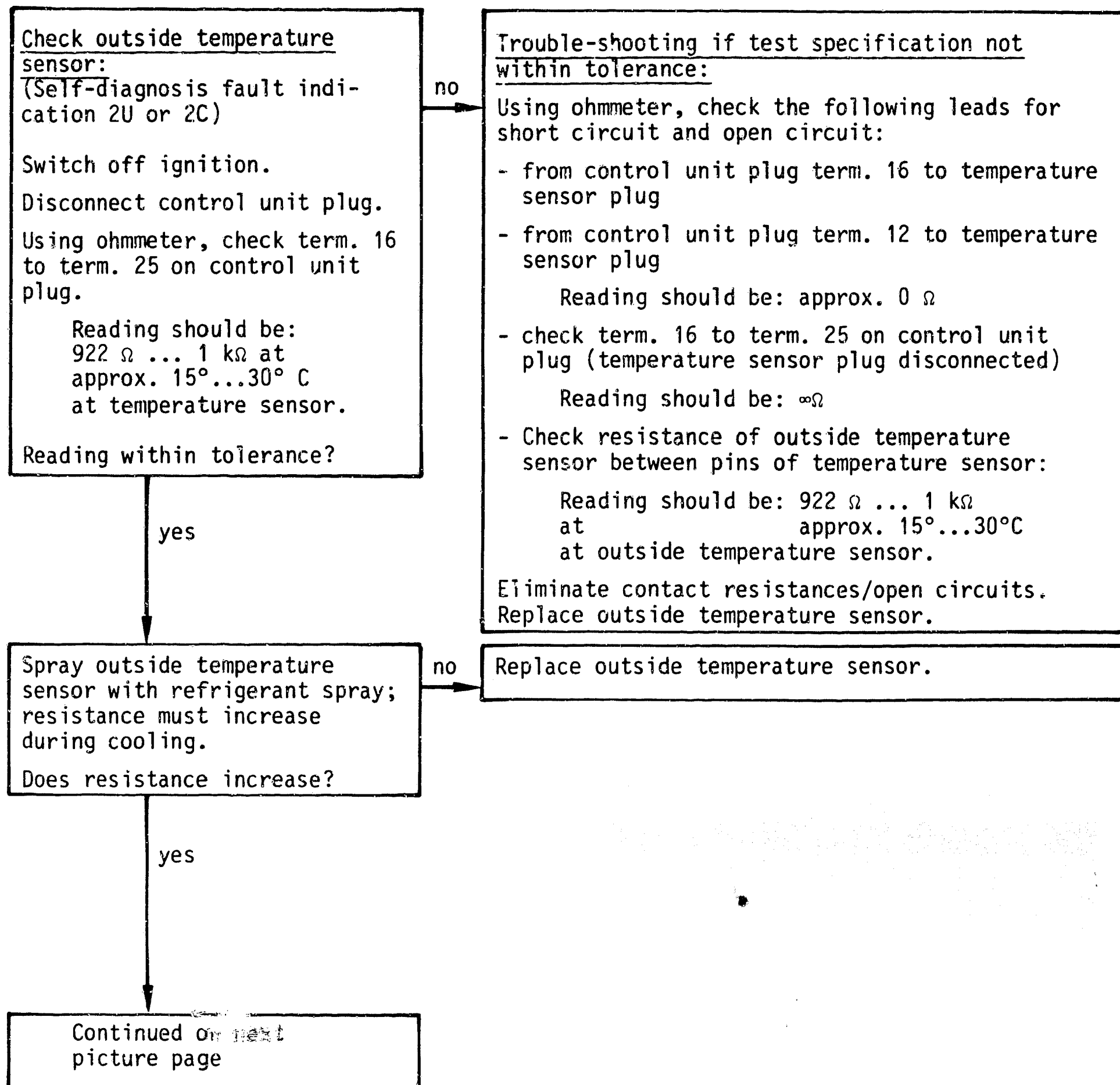
Trouble-shooting program  
Saab 9000



**B11**

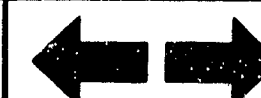
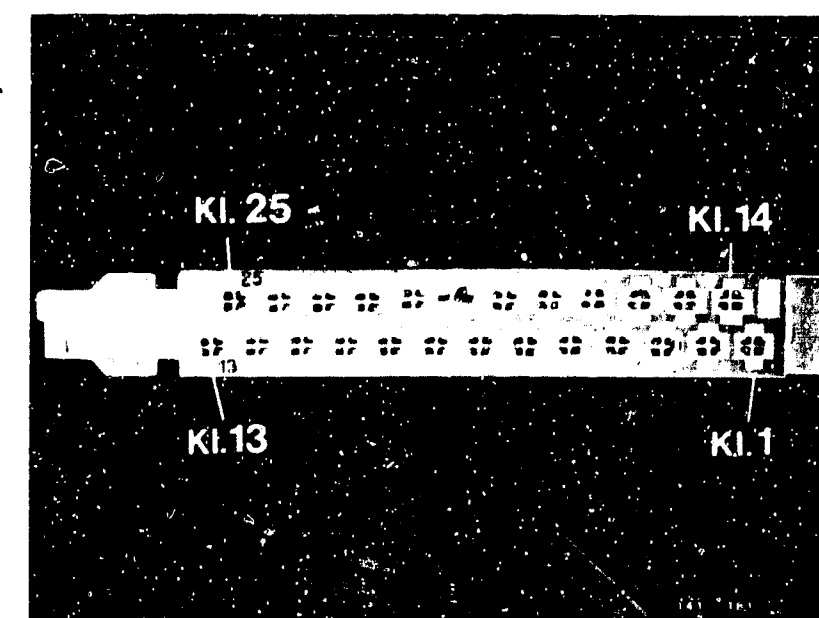
Trouble-shooting program  
Saab 9000

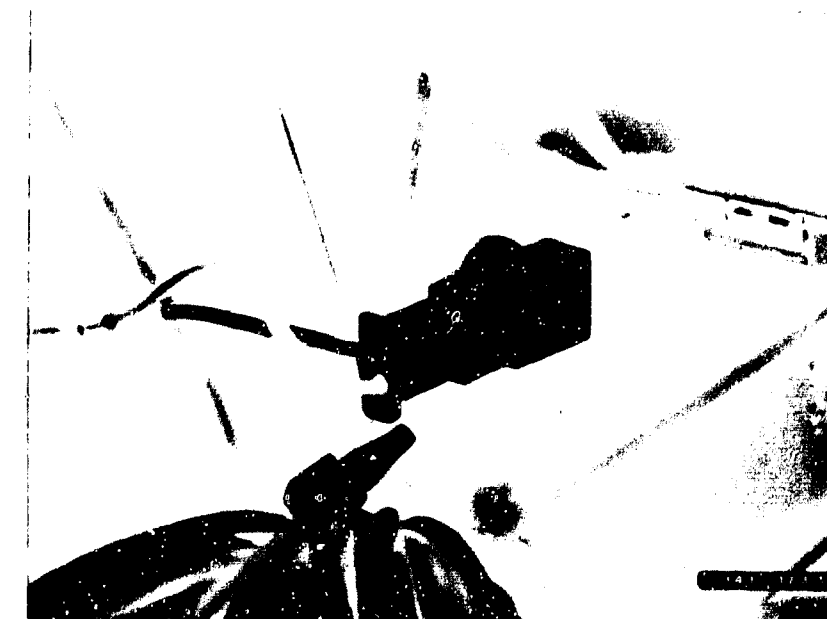
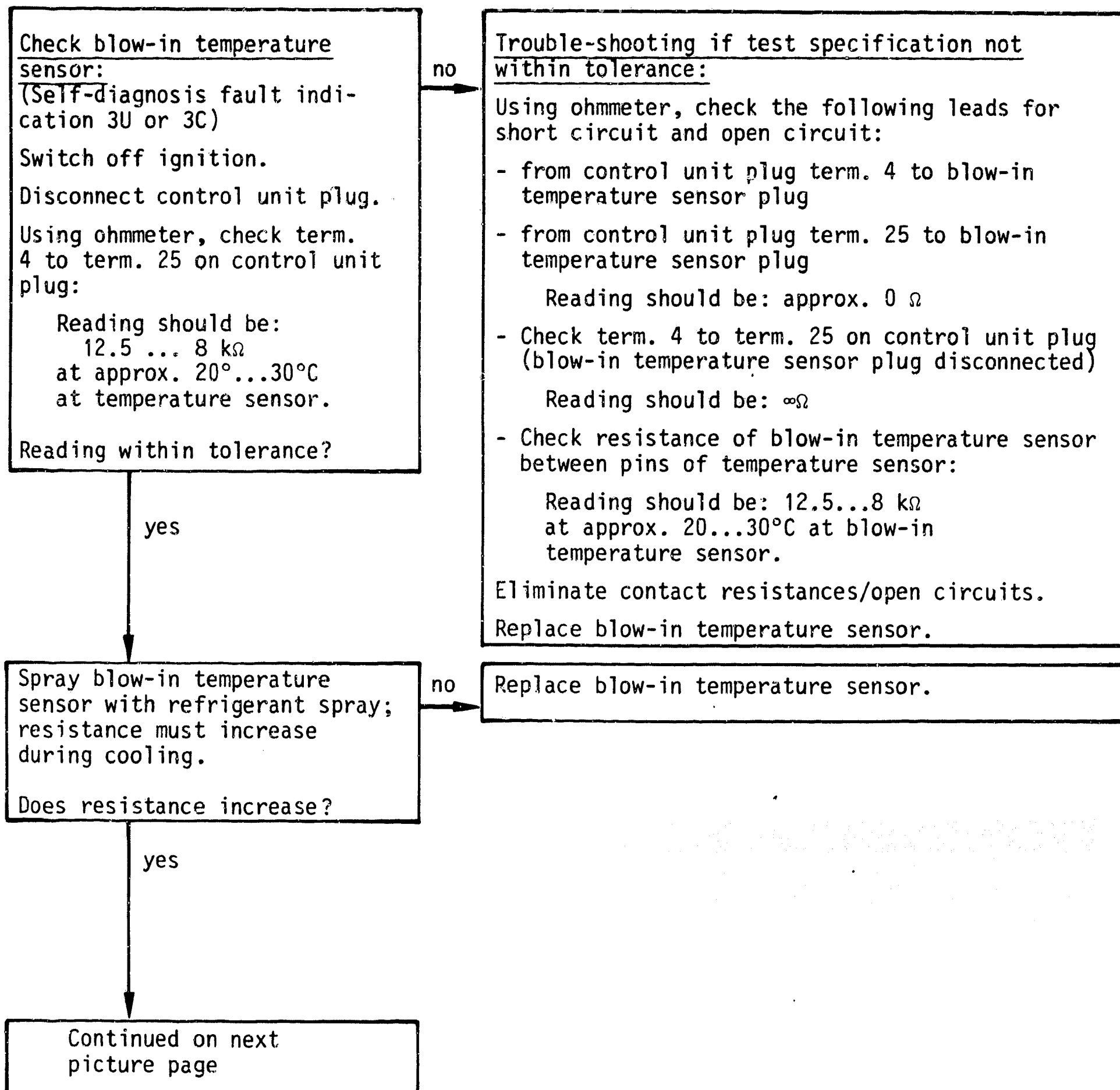




Arrow= Outside temperature sensor

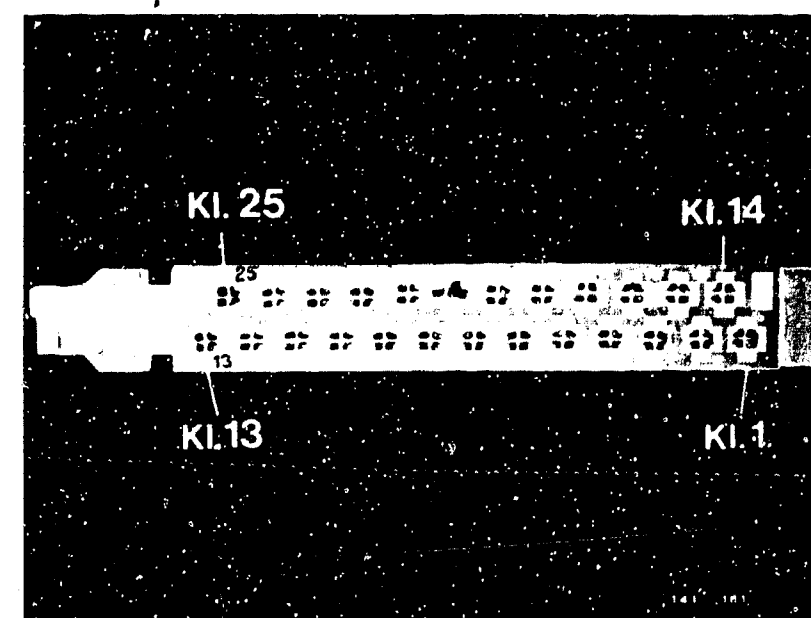
Control unit plug





Blow-in temperature sensor

Control unit plug



Check mixing flap drive:  
(Self-diagnosis fault indication 5U or 5C)

Switch off ignition.

Disconnect control unit plug.

Using ohmmeter, check term. 6 to term. 7 on control unit plug:

Reading should be:  $< 100 \Omega$

Reading obtained?

yes

Using ohmmeter, check term. 19 to term. 12 on control unit plug:

Reading should be:  
approx.  $2 \text{ k}\Omega$

Reading obtained?

yes

Continued on next  
picture page

no

Trouble-shooting if test specification not obtained:

Using ohmmeter, check the following leads for short circuit and open circuit:

- from control unit plug term. 6 to plug of mixing flap drive term. 5 (see bottom picture)
- from control unit plug term. 7 to plug of mixing flap drive term. 8

Reading should be:  $0 \Omega$

- term. 6 to term. 7 on control unit plug (mixing flap drive plug disconnected)

Reading should be:  $\infty \Omega$

Eliminate contact resistances / open circuits.  
Replace mixing flap drive.

no

Using ohmmeter, check the following leads for short circuit and open circuit:

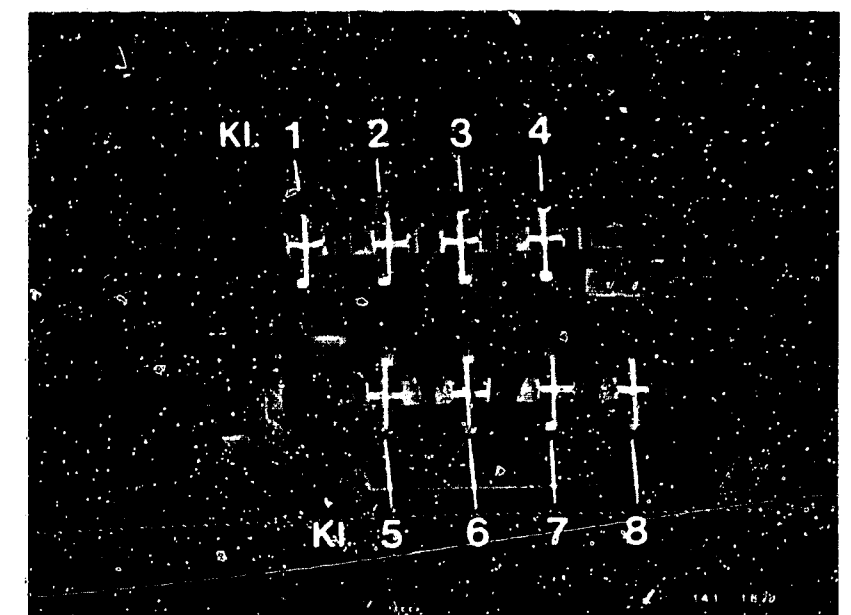
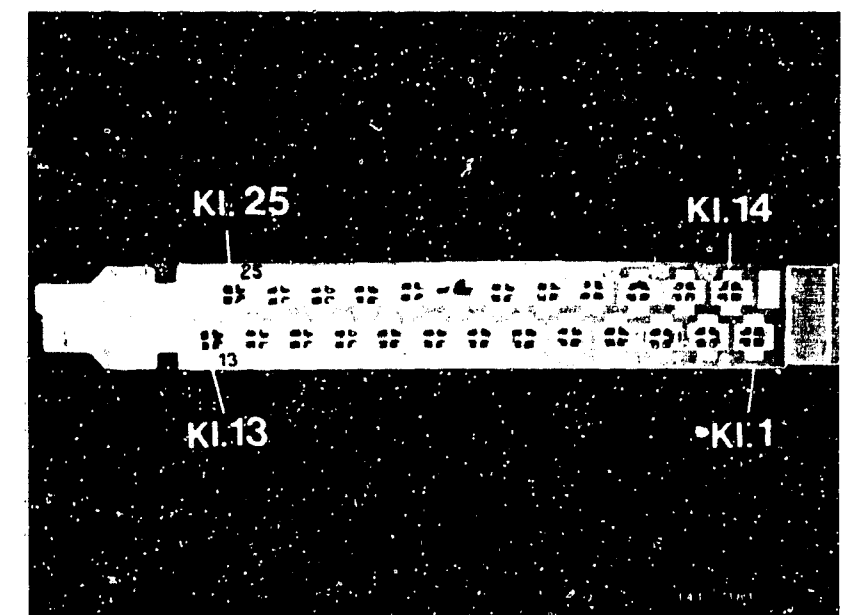
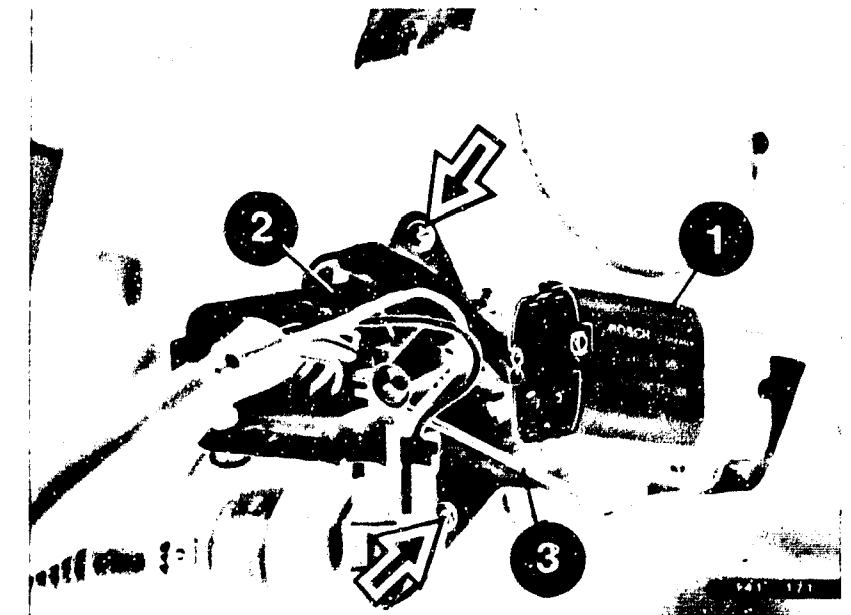
- from control unit plug term. 19 to plug of mixing flap drive term. 6 (see bottom picture)
- from control unit plug term. 12 to plug of mixing flap drive term. 3

Reading should be:  $0 \Omega$

- term. 19 to term. 12 on control unit plug (plug of flap control unit (bottom picture) disconnected).

Reading should be:  $\infty \Omega$

Eliminate contact resistances / open circuits.  
Replace mixing flap drive.



**B 16**

Trouble-shooting program  
Saab 9000



**B 17**

Trouble-shooting program  
Saab 9000



Check mixing flap drive:  
(continued)

On control unit plug:  
Jump term. 6 and term. 14; jump  
term. 7 and term. 13.

Using ohmmeter, check term. 17  
to term. 12 on control unit  
plug.

Reading should be:  
1...2 k $\Omega$

Switch on ignition; mixing  
flap motor operates, resist-  
ance must change uniformly.

Note: If motor does not operate  
(mixing flap at end stop), swap  
polarity of jumped terminals  
(term. 6 and term. 7).

Test specification within  
tolerance?

Does resistance change uni-  
formly?

yes

If indication (5C of self-  
diagnosis) = motor direction  
of rotation incorrect; connect  
motor correctly.

yes

Continued on next  
picture page

no

Trouble-shooting if resistance does not change:

Using ohmmeter, check the following leads for  
short circuit and open circuit:

- from control unit plug term. 17 to plug of  
flap unit term. 7 (see center picture)

Reading should be: approx. 0  $\Omega$

Eliminate contact resistances / open circuits.  
Replace mixing flap drive.

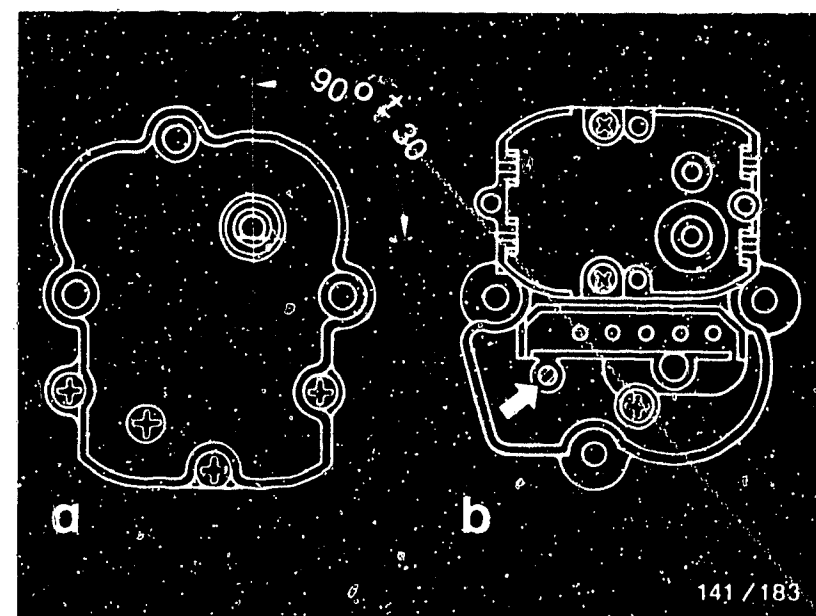
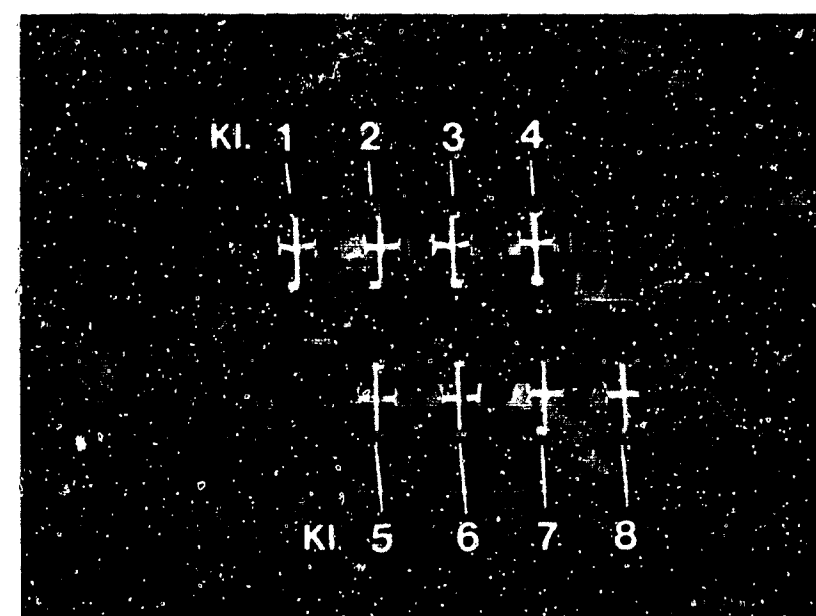
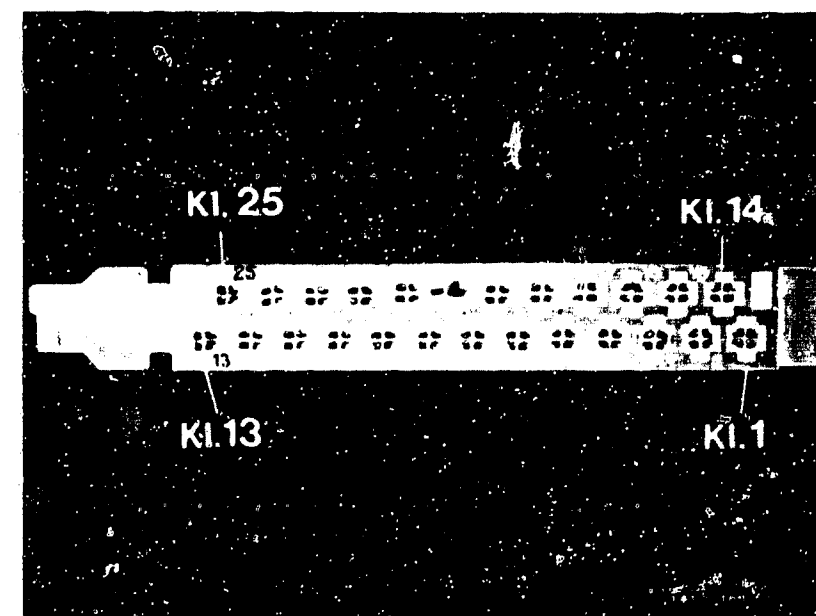
Note:

If, when removed, the mixing flap servo motor  
was operated, check adjustment of feedback  
potentiometer. To do this, let motor run to  
position shown, see bottom picture "a".

Apply 13 V voltage source to plug of flap  
control unit term. 6 (+) and term. 3 (-).

Connect voltmeter to term. 7 and term. 3.

Adjust voltage 6.4...6.8 V at potentiometer  
shaft (see bottom picture "b", arrow).





Check air distributor flap drive:

(Self-diagnosis fault indication 6U or 6C).

Switch off ignition.

Disconnect control unit plug.

Using ohmmeter, check term. 8 to term. 9 on control unit plug:

Reading should be:  $< 100 \Omega$

Reading obtained?

yes

Using ohmmeter, check term. 19 to term. 12 on control unit plug:

Reading should be:  
approx.  $2 \text{ k}\Omega$

Reading obtained?

yes

Continued on next  
picture page

Trouble-shooting if test specification not obtained:

Using ohmmeter, check the following leads for short circuit and open circuit:

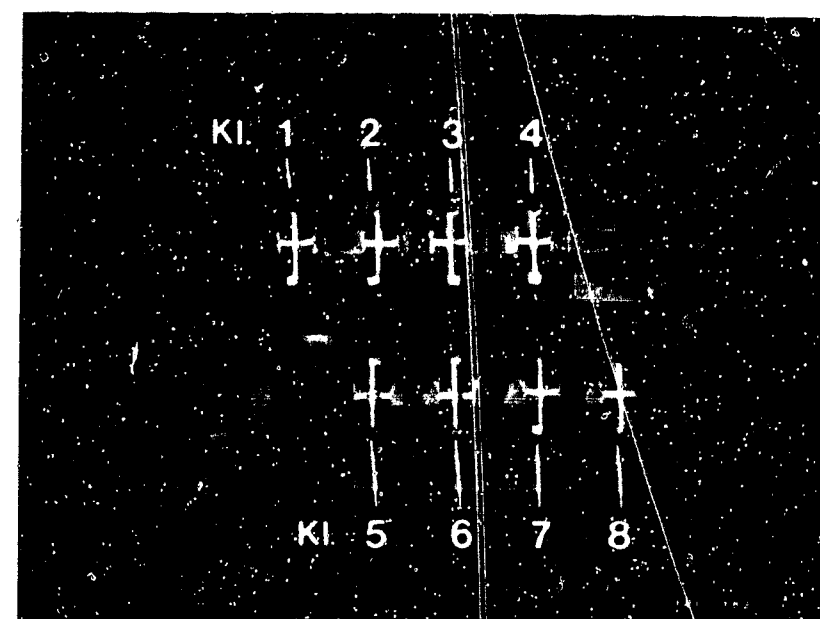
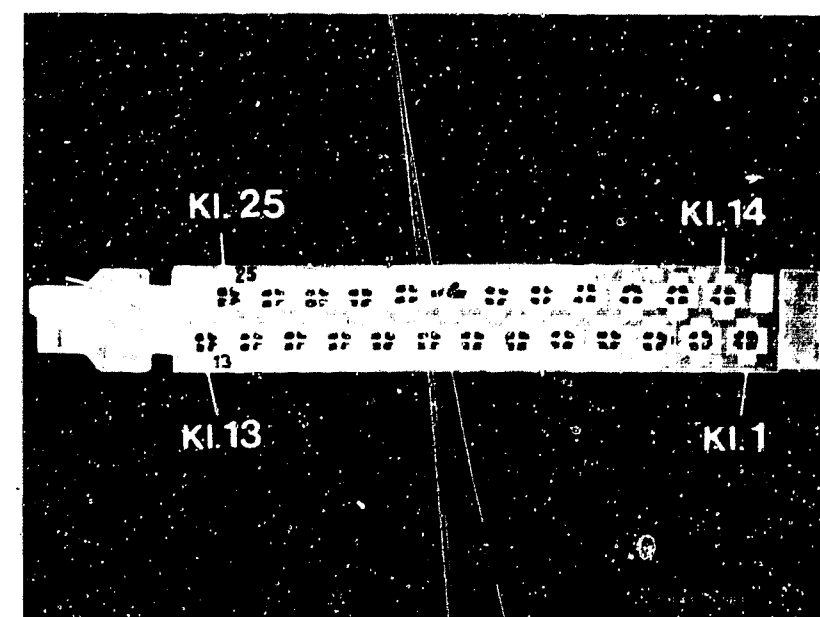
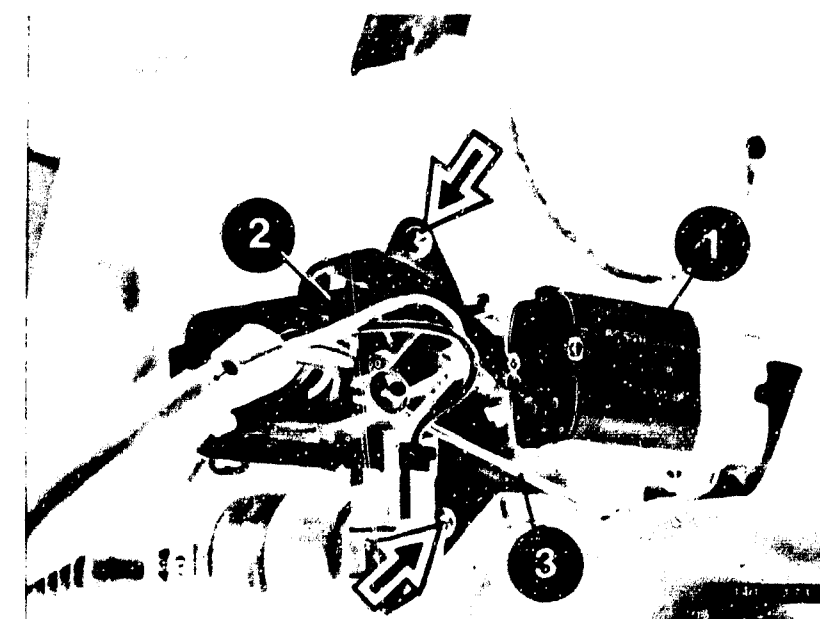
- from control unit plug term. 8 (see center picture) to plug of air distributor flap drive term. 4 (see bottom picture)
- from control unit plug term. 9 to plug of air distributor flap drive term. 1  
reading should be:  $0 \Omega$
- term. 8 to term. 9 on control unit plug  
reading should be:  $\infty \Omega$   
(plug of air distributor flap drive disconnected).

Eliminate contact resistances and open circuits.  
Replace air distributor flap drive.

Using ohmmeter, check the following leads for short circuit and open circuit:

- from control unit plug term. 19 (see center picture) to plug of air distributor flap drive term. 6 (see bottom picture)
- from control unit plug term. 12 to plug of air distributor flap drive term. 3  
reading should be:  $0 \Omega$
- term. 19 to term. 12 on control unit plug  
(plugs of air distributor flap drive and mixing flap drive disconnected).  
Reading should be:  $\infty \Omega$

Eliminate contact resistances and open circuits.  
Replace air distributor flap drive.



Check air distributor flap drive:

(continued)

On control unit plug: Jump term. 8 and term. 14; jump term. 9 and term. 13.

Using ohmmeter, check term. 5 to term. 12 on control unit plug:

Reading should be: 1...2 k $\Omega$

Switch on ignition.

Resistance must change uniformly.

Note: If motor not operating (air distributor flap at end stop), swap polarity of jumped terminals (term. 8 and term. 9).

Test specification within tolerance?

Does resistance change uniformly?

yes

If indication 6C of self-diagnosis, motor direction of rotation incorrect. Connect motor correctly.

yes

Continued on next picture page

no

Trouble-shooting if resistance does not change:

Using ohmmeter, check the following lead for short circuit and open circuit:

- from control unit plug term. 5 (see top picture) to plug of flap control unit term. 2 (see center picture)

reading should be: approx. 0  $\Omega$

- on control unit plug: term. 5 to term. 12 and term. 5 to term. 19

reading should be:  $\infty \Omega$

(plug of flap control unit disconnected).

Eliminate contact resistances/open circuits.

Replace air distributor flap drive.

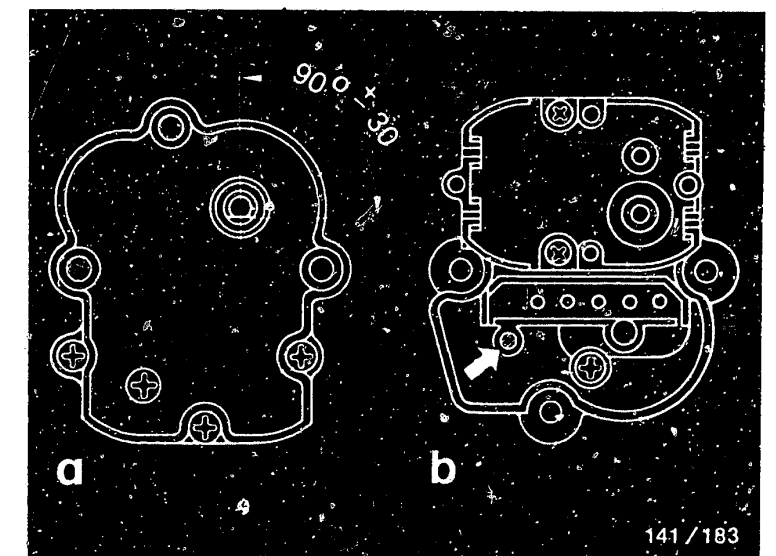
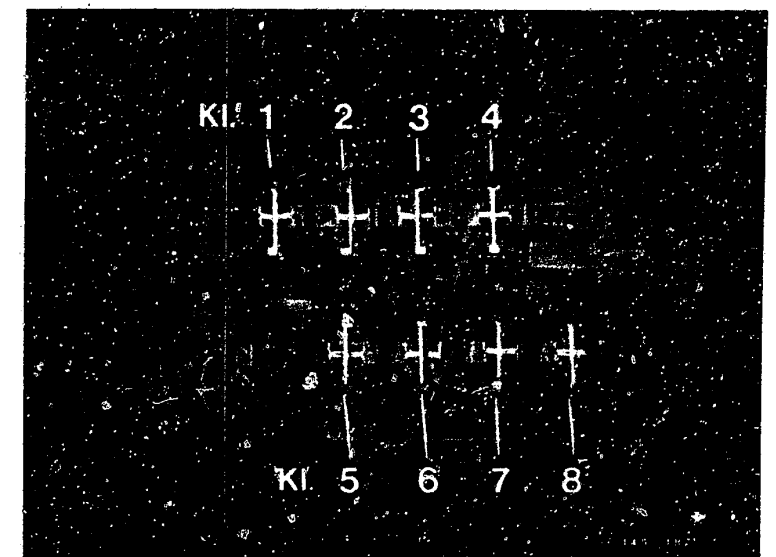
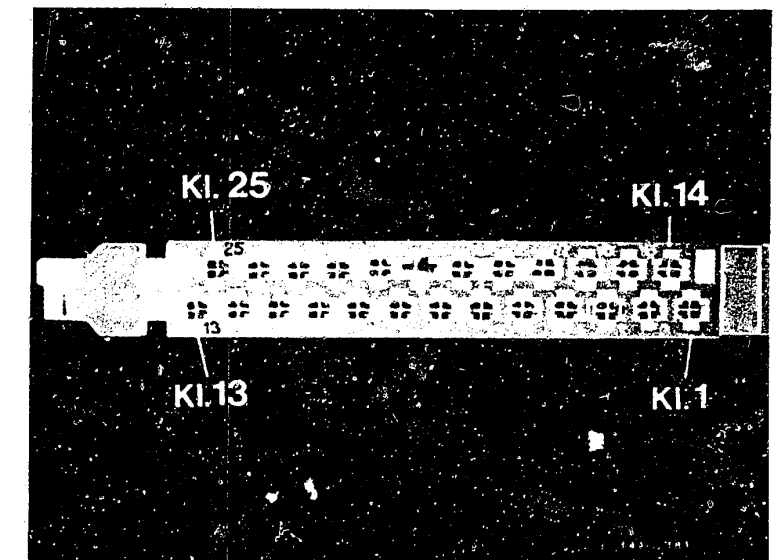
Note:

If, when removed, motor of air distributor flap drive was operated, check adjustment of feedback potentiometer. To do this, let motor run to position shown, see bottom picture "a".

Apply 13 V voltage source to plug of flap control unit term. 6 (+) and term. 3 (-).

Connect voltmeter to term. 2 and term. 3.

Adjust 6.4 ... 6.8 V at potentiometer shaft (see bottom picture "b", arrow).



141/183

**B22**

Trouble-shooting program  
Saab 9000



**B23**

Trouble-shooting program  
Saab 9000



Check fresh/recirculated air flap drive:

(Self-diagnosis fault indication 7U or 7C)

Switch off ignition.

Disconnect control unit plug.

Using ohmmeter, check term. 10 to term. 11 on control unit plug:

Reading should be:  $< 100 \Omega$

Test specification within tolerance?

no

Trouble-shooting if test specification not obtained:

Using ohmmeter, check the following leads for short circuit and open circuit:

- from control unit plug term. 10 (see bottom picture) to plug of fresh/recirculated air flap drive (see top picture)
- from control unit plug term. 11 to plug of fresh/recirculated air flap drive

reading should be:  $0 \Omega$  in each case

- term. 10 to term. 11 on control unit plug

reading should be:  $\infty \Omega$

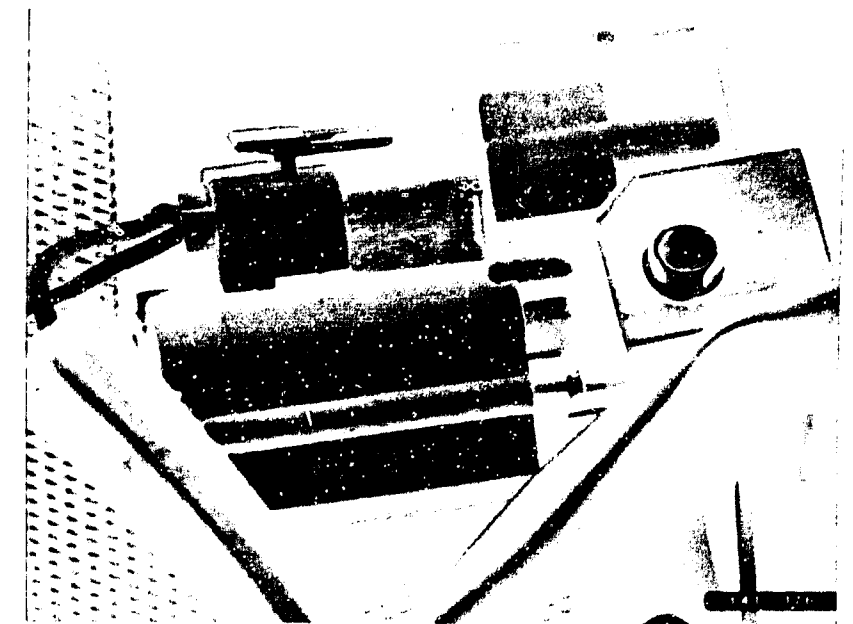
(plug of fresh/recirculated air flap drive disconnected).

Eliminate contact resistances / open circuits.

Replace fresh/recirculated air flap drive.

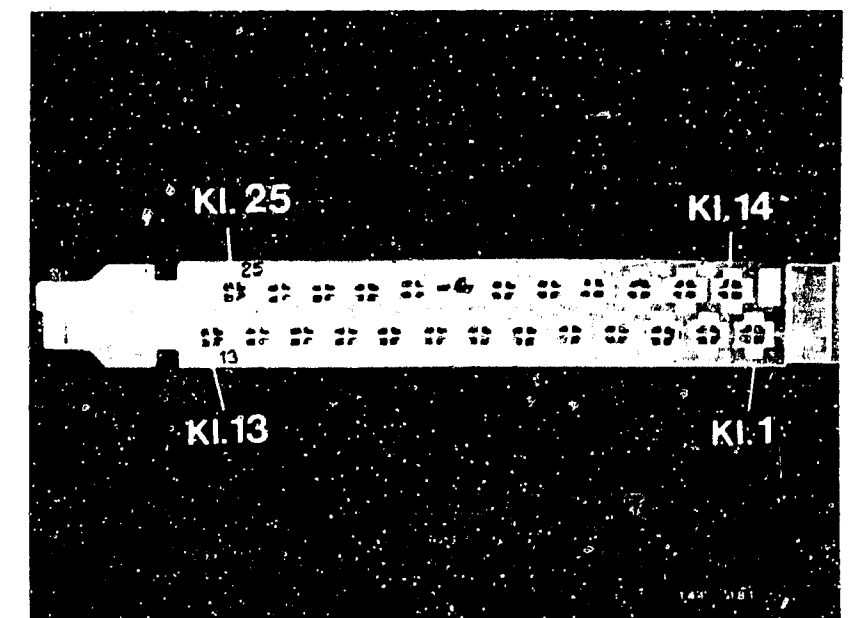
yes

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Fresh/recirculated air flap drive

Control unit plug



C1

Trouble-shooting program

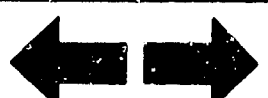
Saab 9000



C2

Trouble-shooting program

Saab 9000



Check blower control:  
(Self-diagnosis fault indication AU or AA).

Switch off ignition.  
Disconnect plug from blower controller.  
Using voltmeter, check term. 3 to term. 2 (ground) on plug of blower controller (see center picture):

Switch on ignition  
Reading should be: > 10 V

Test specification obtained?

yes

Using voltmeter, check term. 4 to term. 2 on plug of blower controller:

Switch on ignition, select blower speed 1  
Reading should be:  
approx. 0.7V

Select blower speed 2  
Reading should be:  
approx. 1.6V

Select blower speed 3  
Reading should be:  
approx. 5.0V

Test specifications obtained?

yes

Continued on next  
picture page

Trouble-shooting:

Remedy open circuits/short circuits on leads.

no

no

Switch off ignition.

Using ohmmeter, check the following leads for short circuit and open circuit:

- from control unit plug (see top picture) term. 22 to plug of blower controller term. 4 (see center picture)
- from control unit plug term. 21 to plug of blower controller term. 1

Reading should be: approx. 0  $\Omega$

- term. 21 to term. 22 on control unit plug

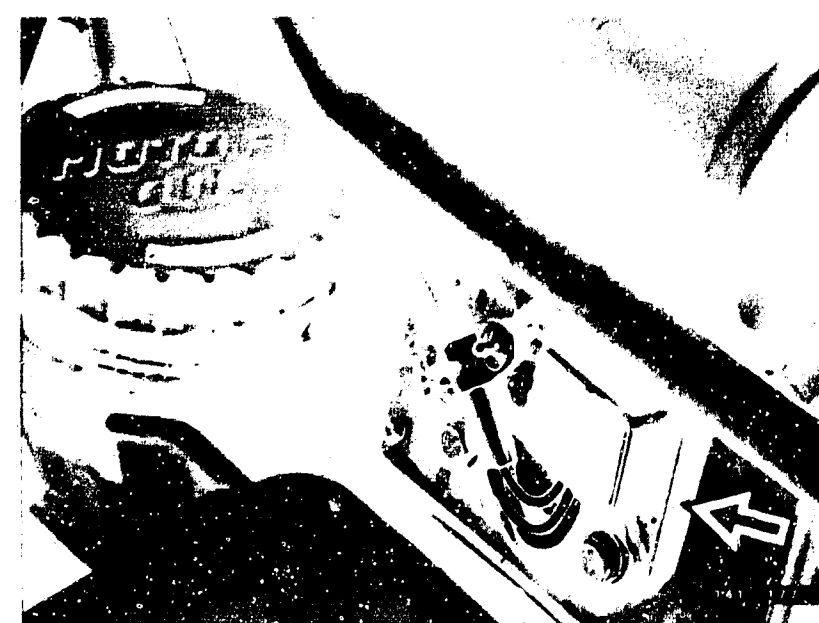
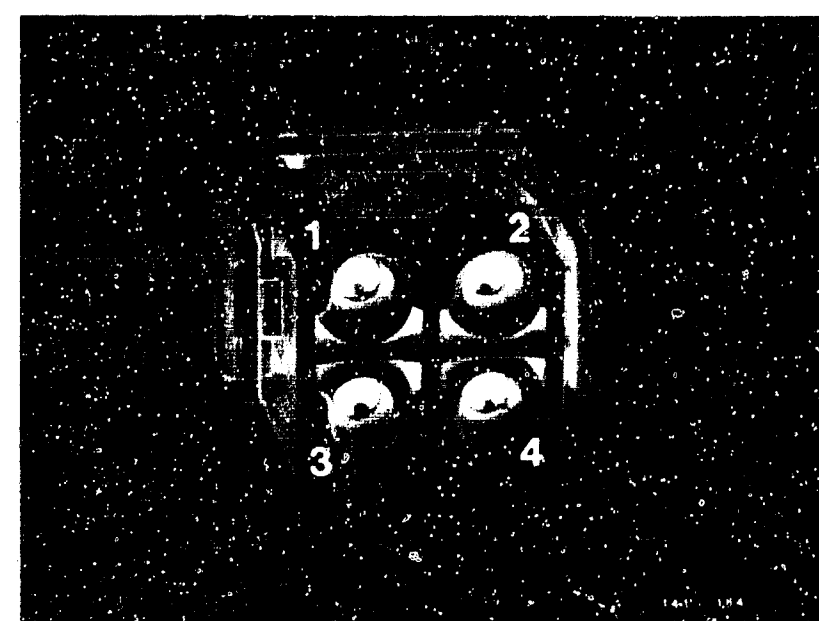
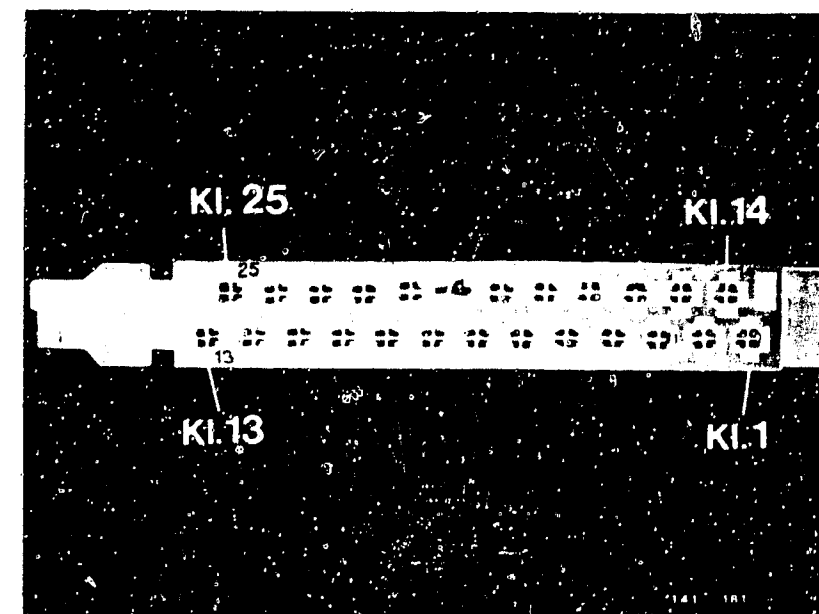
Reading should be:  $\infty \Omega$

(plug of blower controller disconnected).

Rectification of fault:

Eliminate open circuits/short circuits on leads.  
Replace blower controller.

Note: Coat new blower controller on seating surface with thermal conduction paste 5 942 860 003.  
Warning: Thermal conduction paste is poisonous.



Check power supply to electronic control unit:

Switch off ignition.

Disconnect control unit plug (see top picture).

Using voltmeter, check term. 1 to term. 13 on control unit plug:  
(use measuring leads KDZS 0005)

Reading should be:  $U_B$

Switch on ignition.

Using voltmeter, check term. 14 to term. 13 on control unit plug:

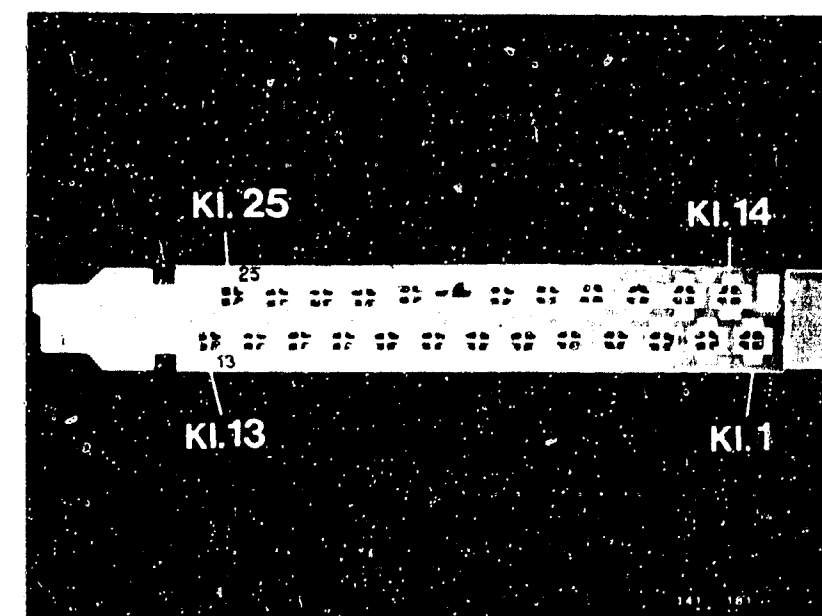
Reading should be:  $U_B$

Test specification obtained?

no

Trouble-shooting if test specification not obtained:

- Check fuses.
- Eliminate open circuits and short circuits on leads.



yes

Continued on next  
picture page

**C5**

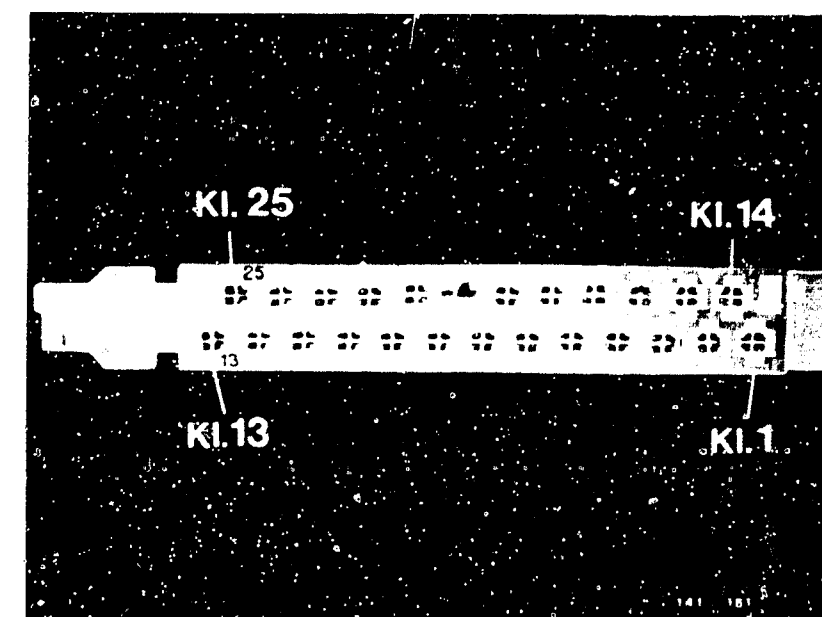
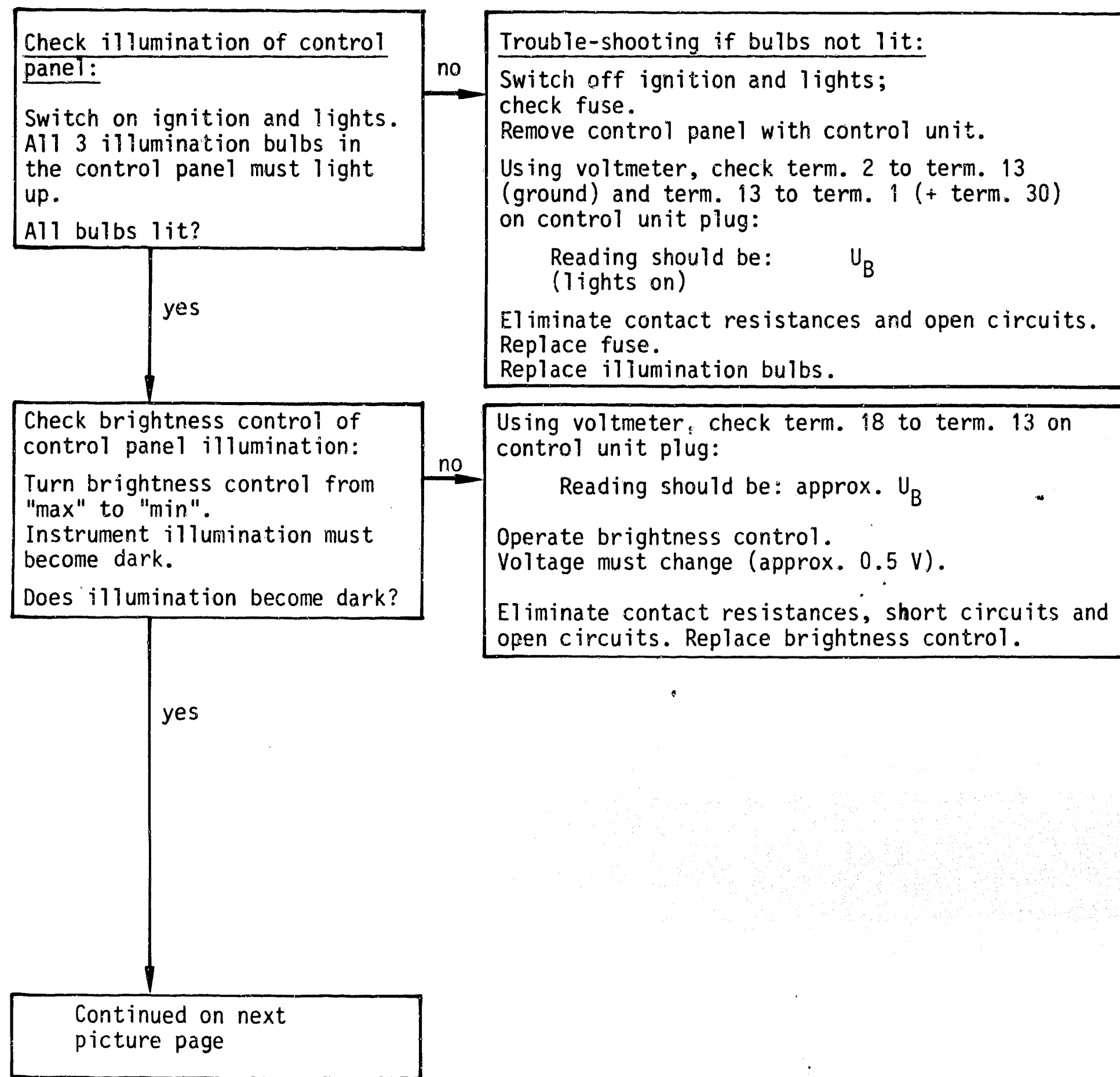
Trouble-shooting program  
Saab 9000



**C6**

Trouble-shooting program  
Saab 9000





Control unit plug

Check suction blower of passenger-compartment temperature sensor:

Switch on ignition;  
hold strip of paper in front of opening of passenger-compartment temperature sensor.  
Strip of paper must be pulled in.

Is strip of paper pulled in?

no

Trouble-shooting:

Switch off ignition.

Disconnect plug from suction blower.

Connect voltmeter to plug of suction blower.  
Switch on ignition.

Reading should be: approx.  $U_B$

Switch off ignition.

Using ohmmeter, check leads for short circuit and open circuit.

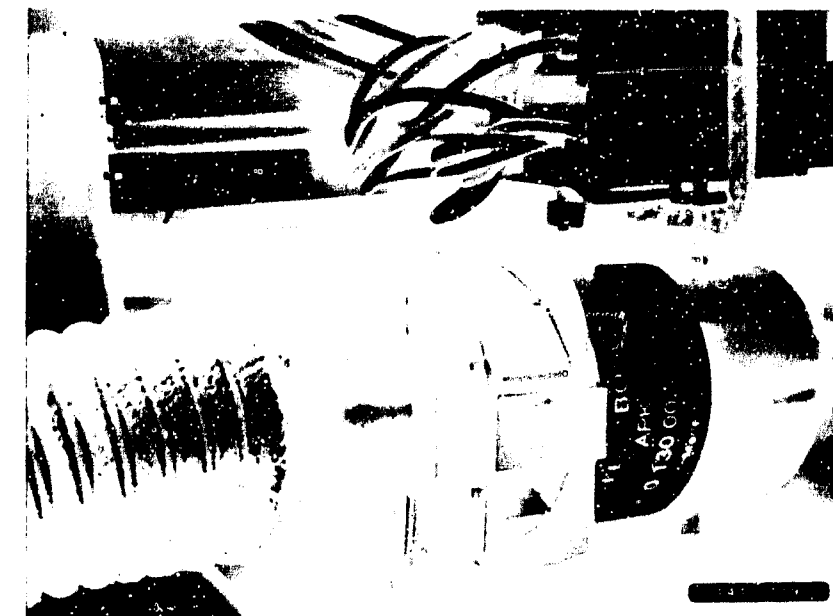
Fault rectification:

Eliminate open circuits/short circuits on leads.

Check hose between passenger-compartment temperature sensor and suction blower for leaks and security.

yes

Continued on next picture page



Suction blower

Passenger-compartment temperature sensor



**C9**

Trouble-shooting program  
Saab 9000



**C10**

Trouble-shooting program  
Saab 9000





Check energization of compressor clutch:

Switch off ignition;  
disconnect control unit plug.  
Jump term. 23 and term. 14 on  
control unit plug (see center  
picture).

Switch on ignition.

Compressor clutch and engine  
fan must switch on.

Do refrigerant compressor and  
engine fan switch on?

no

### Trouble-shooting:

Using ohmmeter, check leads

- from control unit plug term. 23 through pressure switch and icing-protection switch (see top picture, arrows) to relay base (compressor relay (see bottom picture, arrow) term. 86
- from relay base term. 85 to ground
- from relay base term. 87b to plug of compressor clutch

Reading should be:  $0 \Omega$  in each case

Using voltmeter, check term. 30 to ground on  
relay base

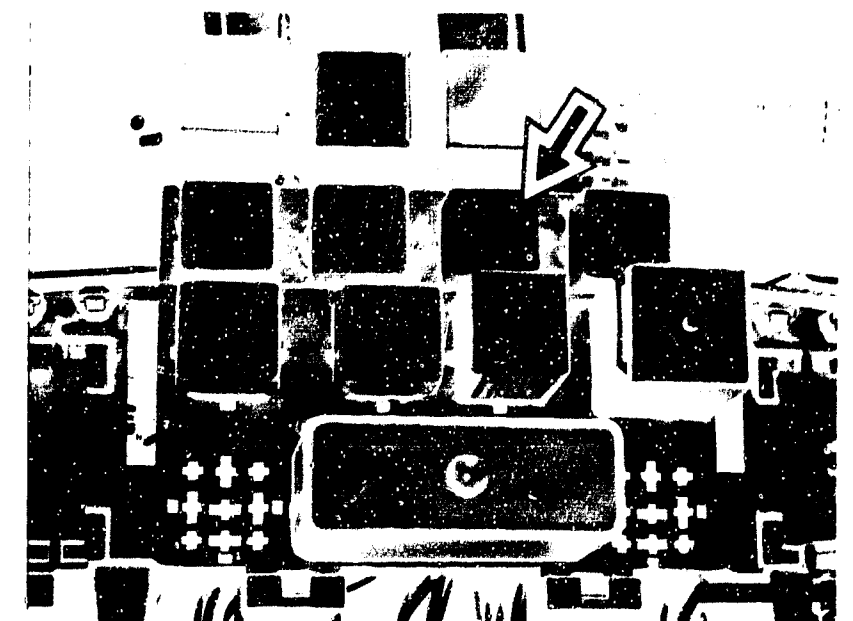
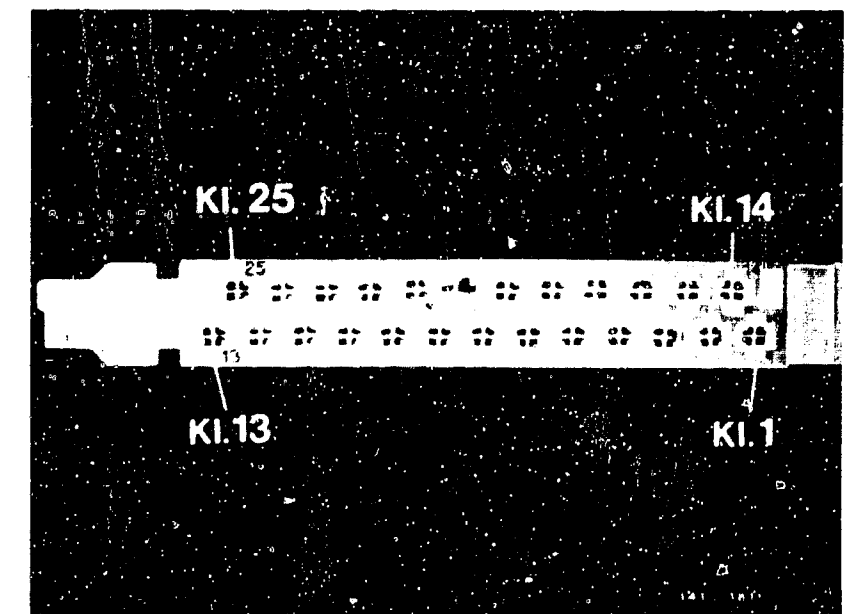
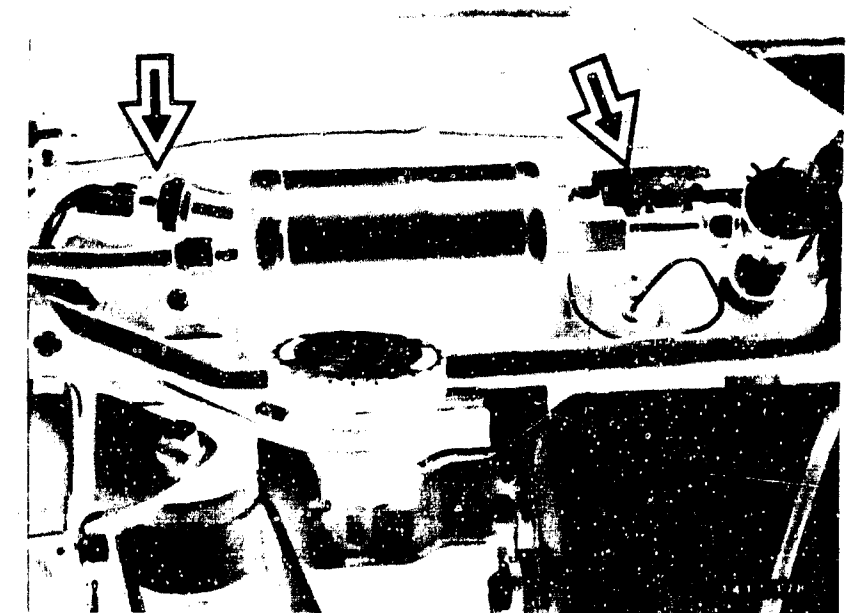
Reading should be:  $> 10 \text{ V}$

Eliminate contact resistances/open circuits.

Replace pressure switch, icing-protection switch  
or compressor relay.

yes

Continued on next  
picture page



**C11**

Trouble-shooting program  
Saab 9000



**C12**

Trouble-shooting program  
Saab 9000





### Energization of heated rear window

Switch off ignition.

Disconnect control unit plug.

Jump term. 24 and term. 14 on control unit plug (see top picture).

Switch on ignition:

Heated rear window relay must pull in; rear window is heated.

Does heated rear window relay pull in?

no

### Trouble-shooting if relay for heated rear window does not pull in:

Using ohmmeter, check leads from control unit plug (see top picture) term. 24 to relay base of heated rear window (see bottom picture) term. 86 and from relay base term. 87 to heated rear window connection:

Reading should be:  $0 \Omega$  in each case

Using voltmeter, check term. 85 to + term. 30 on relay base of heated rear window.

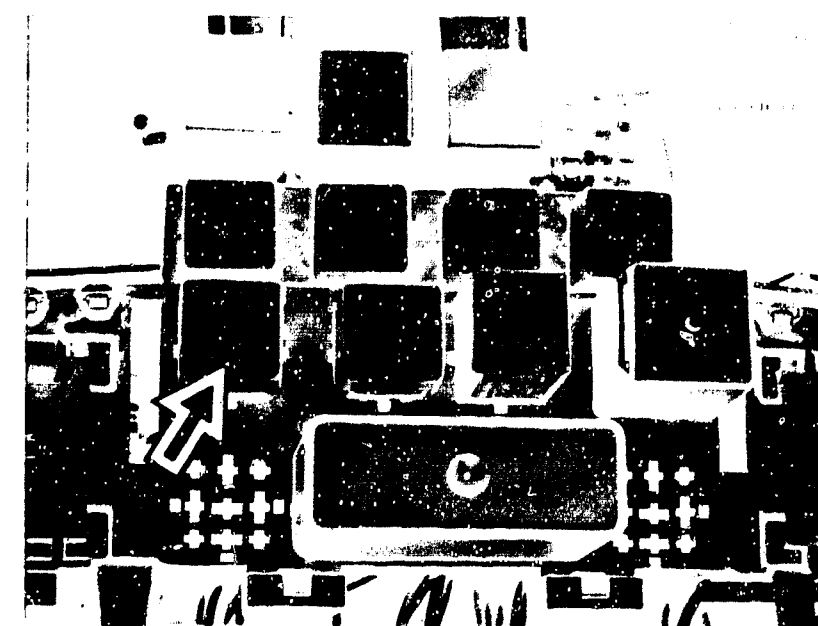
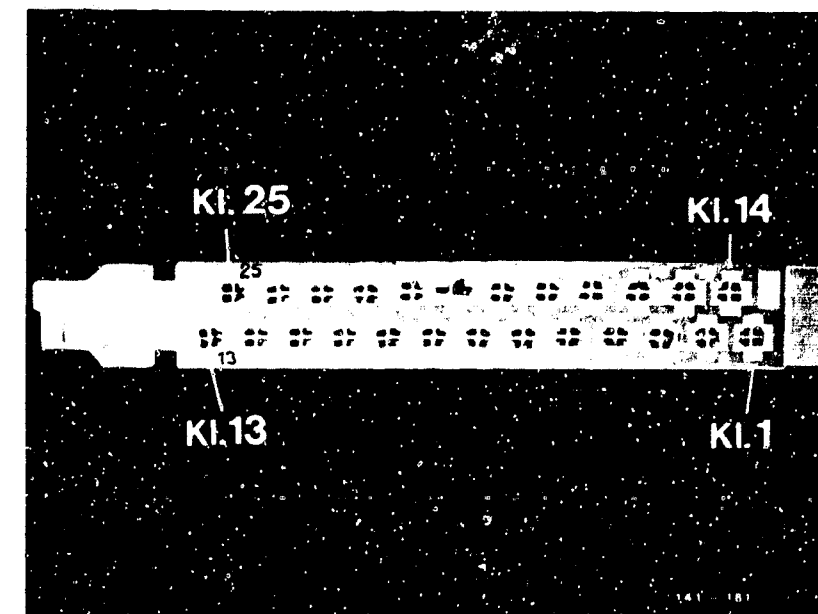
Switch on ignition:

Reading should be:  $U_B$

Fault rectification: Eliminate open circuits/contact resistances on leads/plug-in connections.

yes

Continued on next picture page



**C13**

Trouble-shooting program  
Saab 9000



**C14**

Trouble-shooting program  
Saab 9000



### Check solar sensor:

Switch off ignition.

Disconnect control unit plug.

Connect ammeter to term. 15 (+) and term. 12 (-) on control unit plug.

Set 1.5 mA measuring range.

Remove left-hand loudspeaker cover with solar sensor (see top picture).

Hold light source, e.g. workshop lamp over solar sensor.

Reading:

approx. 0.02...0.6 mA  
depending on illumination  
intensity

Shade solar sensor

Reading:

must decrease

Is reading within tolerance?

Does reading drop?

no

### Trouble-shooting:

Using ohmmeter, check the following leads for short circuit and open circuit:

- from control unit plug term. 12 to plug of solar sensor
- from control unit plug term. 15 to plug of solar sensor

Reading should be: approx. 0  $\Omega$

- Term. 15 to term. 12 on control unit plug

Reading should be:  $\infty \Omega$

(solar sensor plug disconnected).

Connect ammeter directly between terminals of solar sensor

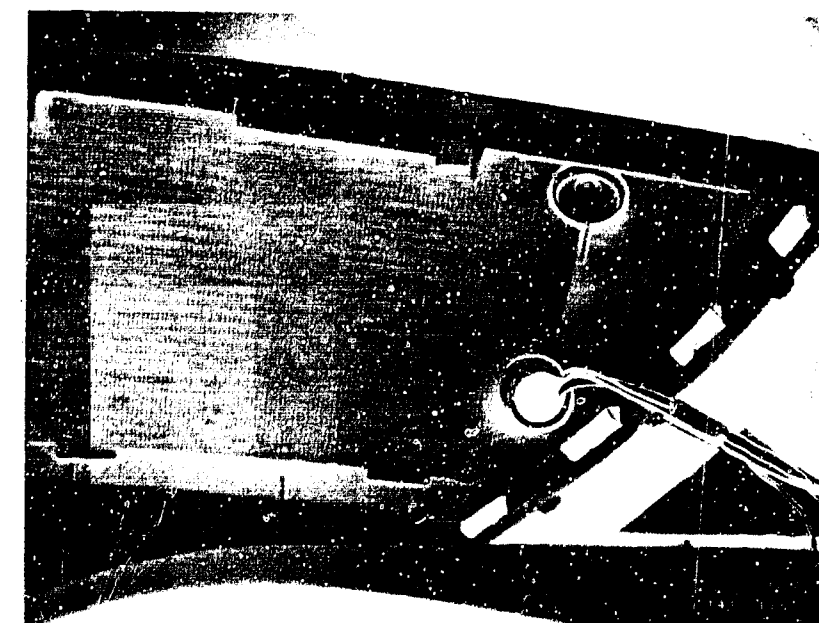
Reading should be:

0.01...0.6 mA (depending on illumination  
intensity)

Fault rectification:

Eliminate contact resistances, open circuits  
and short circuits on leads.

Replace solar sensor.



yes

Continued on next  
picture page



Energization of idle-speed  
increase valve:

Run engine at idle.  
Press "ECON" key on control  
panel.

Select "low" temperature.

Disconnect idle-speed in-  
crease valve plug.

Press "AUTO" key on control  
panel:

Refrigerant compressor cuts in;  
idle speed must drop.

Does idle speed drop?

no

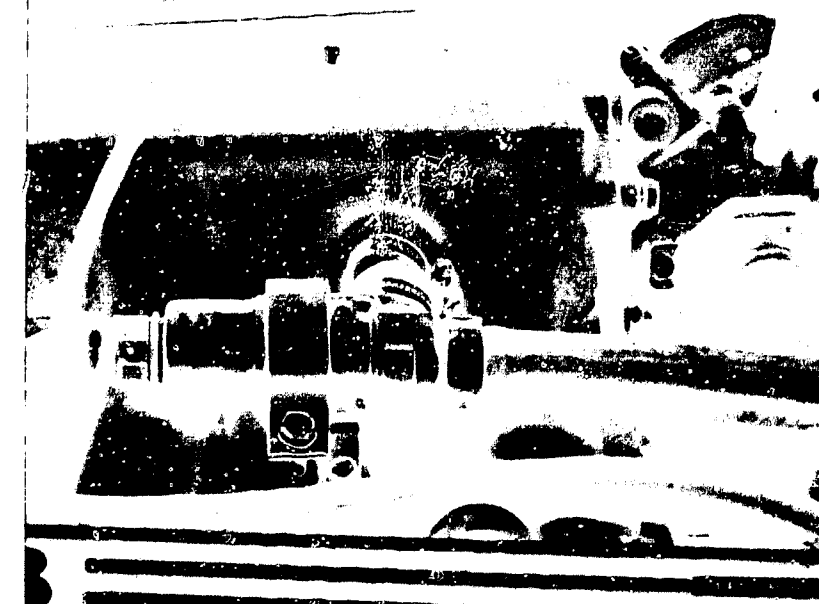
Trouble-shooting if idle speed does not drop:

Check relay of refrigerant compressor (see bottom  
picture, arrow) (visual examination: corrosion,  
leads).

Using ohmmeter, check for continuity in lead from  
refrigerant compressor relay base term. 87A to  
idle-speed increase solenoid valve plug (see top  
picture).

Reading should be: approx. 0  $\Omega$

If no fault detectable, check LH-Jetronic.

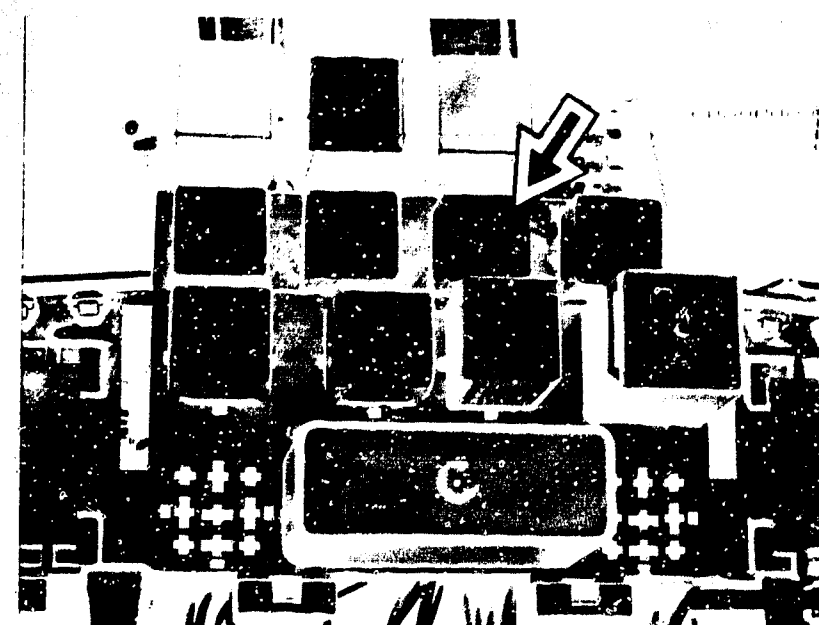


Idle-speed increase solenoid valve

yes

Continued on next  
page

Arrow: Refrigerant compressor relay



**C17**

Trouble-shooting program  
Saab 9000



**C18**

Trouble-shooting program  
Saab 9000



Testing completed:

If customer complaint has not yet been remedied, look for further possible faults in the mechanicals of the air conditioner.



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